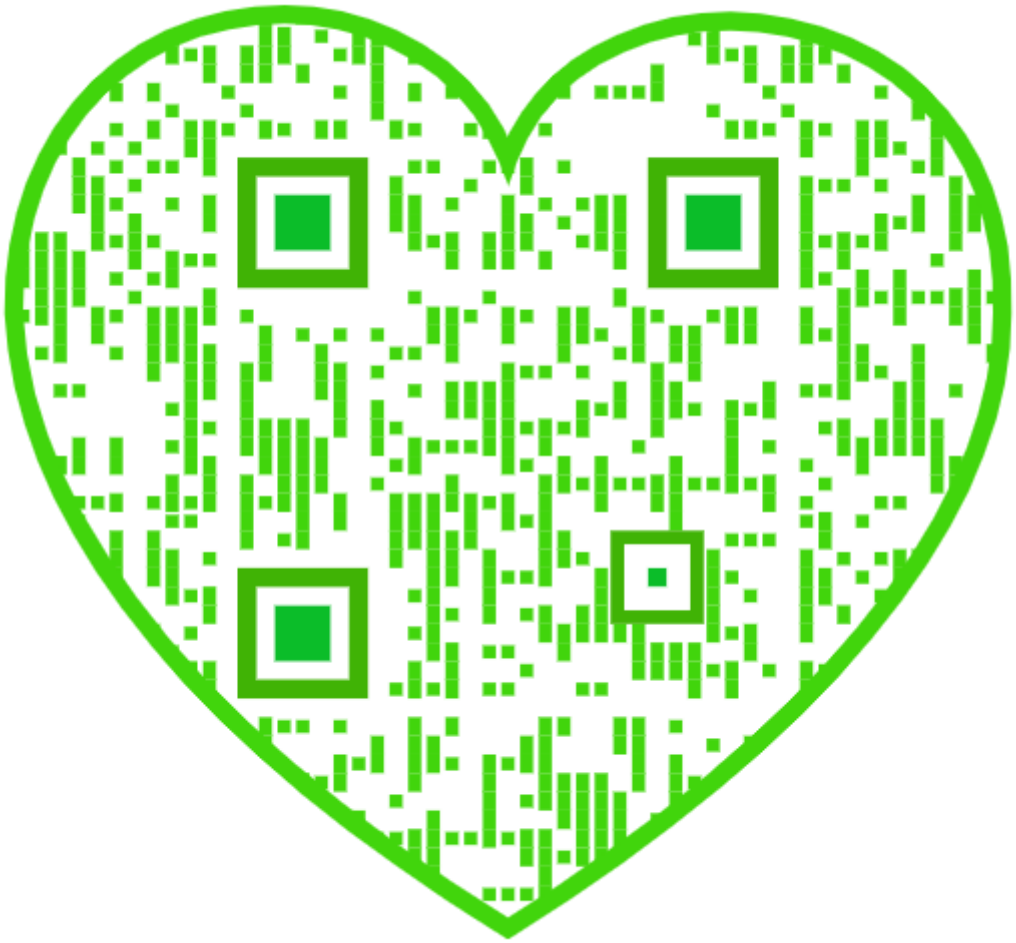

COURSE OF STUDY IN THE EIGHT GRADES

VOL. II

The MC Co.

COURSE OF STUDY IN THE EIGHT GRADES

VOL. II

GRADES V TO VIII

BY

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COURSE OF STUDY IN THE EIGHT GRADES

THE MORAL AIM IN THE COURSE OF STUDY

THE moral aim in education is naturally preëminent and receives first consideration in planning the course of study. In any true plan of education the moral element must constitute the foundation and framework of the whole structure. This is true in theory, and it naturally tends to become true in practice.

We believe that the principal changes which have been taking place in the course of study amount to a recombination of educational forces around moral centres. The moral purpose is acquiring a supreme authority, and all the agencies of the school are finding their place and adjustment in subordination to this controlling influence.

Not that the result of this concentration upon the moral aim has been fully achieved, but the movement in this direction is positive and strong. The reasons for the above statements may be briefly given.

The crowding in of new studies into our schools in recent years has compelled us to make investigation

of relative values. When we are once fairly launched upon this task of estimating values, it is inevitable that moral values will come to the front as of supreme worth. So long as we followed traditional courses of study without criticism, no particular emphasis was given to moral education, in instruction proper. But in recent years there has been much serious thought as to the fundamental value of each subject, and those studies of pronounced moral content have become prominent.

In this general sifting-out process we may note that those studies which contain a rich and varied thought content (such as history, literature, geography, and natural science) are receiving far more time and consideration, while the instrumental studies (dealing largely with forms and symbols, such as spelling, formal reading, writing, and parts of arithmetic) are falling into a subordinate rank.

Again, among the richer content-studies, history, literature, and industrial topics dealing directly with moral relations are probably receiving more attention than any other studies.

But even these changes do not show the full strength of the general drift toward moral centres in education. The social aim which has come into distinct prominence in the recent discussion of education has in view the reorganization of all studies and activities on the basis of social needs. Here again the stress falls upon human and moral rela-

tions; at bottom the social life is preëminently the moral life. The social aim in education is calculated to make the whole industrial, economic, political, and coöperative life of men one large moral problem. The sphere of moral action becomes coextensive with man's relations to his fellows in all the activities of life.

This brings us also to a perception of the fact that moral training is not an isolated thing, separated from the usual activities and interests of man. The moral elements are deeply imbedded in his entire physical and mental life. This enables us to see also that morality is not a separate study, but is, in a sense, the dominating element in all studies. The moral element is the thing which gives motive and coherency to all branches in the curriculum.

A critical examination of the studies of the elementary school will show that these are not careless propositions, but that they feebly express powerful truths and actual tendencies.

It is not difficult to see that in selecting the materials of our curriculum we are dealing primarily with *ideas*, and especially with those ideas which have universal validity and worth for every human being. The course of study in the common school is rapidly becoming the great treasure-house where we gather in all good things and then select out the best. This again is literally true. For years we have been collecting from the present and past life of America,

England, Europe, and the whole past world those best things which are worthy of a place in the royal treasure-house of truth and beauty. These things alone and nothing else deserve the studious attention of children. A similar sifting-out process has been going on in all studies, as in history (from biography and best sources), in geography, in natural science, in music, in manual arts, etc.

Now is it not a clear case that those ideas in all studies which best bring out the important relations of man to his fellow-men must inevitably hold the first place of honor and influence? Certainly this is true, if those who make courses of study are searching for substantial values. But there seems to be a foresight higher than that of individuals which has been collecting into our school course the best wisdom and virtue of the world. By a general consensus our school course has been of late years enriched by much of the best nature study, history, and literature. It is the result of a widespread tendency. Who is responsible for the fact that the lives of Washington, Lincoln, Franklin, and Horace Mann have found such a strong influence in our schools? Why should Whittier's "Snow-Bound," Longfellow's "Evangeline," and Hawthorne's "Great Stone Face" find almost universal acceptance in our reading lessons? Because of their supreme value. And these are merely illustrations. In all studies we have been picking out the best, those

which bring home the great ideas in the most effective way.

And yet Whittier's "Snow-Bound" and Longfellow's "Evangeline" were never selected, primarily, with the conscious motive of teaching morals. So much the better. Dickens's "Christmas Carol" was never chosen as a text-book in Christmas ethics, yet it inculcates such ethics far better than sermons. It is not by direct moralizing that we best teach morals, but by incorporating into our courses of study and school activities those race materials and life processes which are in themselves the best expression and realization of moral conduct. These are the morally educative forces.

The course of study contains the chief moral ideas of the race in strong, typical representation. Such literature as "Hiawatha," "Robinson Crusoe," Æsop's "Fables," Ruskin's "King of the Golden River," Lowell's "Vision of Sir Launfal," Plutarch's "Lives," Scott's "Marmion," and Webster's "Speeches," is moral in its inmost quality and spirit. Franklin's "Autobiography," Scudder's "Life of Washington," Hosmer's "Life of Samuel Adams," Hawthorne's "Grandfather's Chair," Lamartine's "Life of Columbus," Parkman's "Montcalm and Wolfe," Schurz's "Essay on Lincoln," Coffin's "Boys of '76," Scott's "Tales of a Grandfather," and Motley's "Essay on Peter the Great" are strong in their portrayal of men in action under the temptations and

vicissitudes of life. Our course of study has been gradually accumulating the moral bible of the race.

And yet this is not morality according to any one man's prescription or decoction. Bibles are not made thus, but by a general consensus of opinions wrought out through many years. It is in this grand, comprehensive, selective way that the choice materials of our course of study have been gathered. It seems certain that no matter what our theories of moral training may be, no matter how much at variance our ethical systems, the subject-matter with which they all deal, and which is of supreme importance, is this accumulated race material, this best substance of human experience.

Being already in possession largely of this accumulation of ethical materials, the important question is how to make use of it, how to arrange and organize it as a strong, steady current of influence operating upon growing children. But first of all we may well congratulate ourselves as being in possession of this heritage of ideas, this store of seminal morality. Doubtless the future will enrich it and organize it. In Germany the Herbart School has attempted to concentrate the whole range of studies upon it, and thus give it a conscious controlling influence in education. This is at least a very valuable experiment.

In the present course of study we have not attempted any express and systematic plan of concen-

tration upon the ethical materials in the school course. And yet it seems to us that an increasing organization of instruction and of all other school activities along fundamental, ethical lines is inevitable as teachers acquire insight into the function and relative values of studies and other school influences.

We will attempt to give, briefly, the chief reasons for this increasing concentration of educational forces upon ethical values.

1. Moral ideas are of chief importance to individuals and to society, being the foundation of strong, individual character and of right social relations. This applies to the whole range of human activities, industrial, political, and vocational, public and private.

2. The course of study is the chief treasure-house where these ideas in their best educative embodiment are gathered and definitely organized for educational purposes. This we have already illustrated.

3. The extensive adoption into the school course of applied science, of industrial and economic studies, and of manual arts is bringing about a large extension of the moral sphere in education. For it is a definite inclusion of these fields of social activity into the school course. It seems certain that typical human occupations and industries are destined to constitute a good share of the school course of the future. It is in this field that the great majority of people are definitely employed, and it is in the relations of industrial and economic life that moral ideas

should become supreme in controlling conduct and human relations. The assumption is that moral ideas are not cultivated apart and later applied to various realms of action, but that moral ideas applicable in industrial life are best understood by studying and practising industrial life itself, and thus growing into the moral situations. On the basis of this principle, the school course should include the typical experiences in the whole range of human activities. (Industrial occupations and manual arts included.)

4. Even such arts as reading, spelling, writing, language, and formal arithmetic may contribute to the moral ends of life by equipping us with those necessary instruments of knowledge without which we cannot carry out the purpose of life.

5. The general social organization of the school provides the framework of life within which moral conduct develops, and is one of the powerful means of moral culture. The relations of teachers and pupils to one another in the necessary social contact of school life are essentially moral and should be shaped upon moral ideals and practice.

6. The rich collection of race ethics and experience, which was described above as the chief strength of the school course, is alike valuable to teachers and pupils. It is a limitless source of moral power and of moral stimulation to educators, first in the enlargement and strengthening of their own characters, and second in equipping them with ample

resources for influencing the development of the young.

7. With this background of educative materials and of social life furnished by the general organization of the school, teachers have the most favorable opportunity for bringing to bear upon young people their personal and supervisory influence. In this respect it is the special function of teachers to keep the moral sense of their pupils alert and sensitive to the higher demands. With the rich accumulation of moral ideals in the school course this task is far easier. If the teacher relies wholly upon his individual resources, he cannot fail to realize his own narrowness and feebleness. If he is conscious of strong and steady support from the wise and powerful teachers of the race, and from a wide range of social and moral activities in the school programme, he can well feel that he is an organizer of moral forces.

In laying out the present course of study we feel that these great and practical moral considerations have exerted the controlling influence. There has been a conscious intent to give preëminence to moral purposes. This shows itself both in the selection of the best materials and in the organization of studies along social lines.

In previous books I have attempted to discuss at some length the moral aim of education, the relative values of studies and their function in contributing to this aim, the organization and correlation of studies so

as to make them work together toward the realization of moral character, and the method of handling large and important units of study which involve the chief ideas. The "Special Methods" in the different studies have worked out these problems more fully in the concrete materials of each important branch of study.

The present course of study is an effort to bring all these results together in compact form.

THE PROBLEM OF MODIFYING THE SCHOOL MACHINERY TO MEET MODERN NEEDS

THE changes which have been going on in the school course are so numerous and radical that the question has been pointedly raised whether the old machinery of instruction and discipline has not become antiquated and unsuited.

These changes cover nearly every phase of school work. The old studies are now taught with a different aim and in a new way. Reading is no longer merely acquiring the formal art of expression, but aims at vital acquaintance with literature and authors; history is an effort to revive and relive the past in its typical experiences, not a tabulation of successive events; language aims at good English rather than at rules and exceptions in grammar. But a group of new studies such as drawing, manual training, and physical culture, unlike anything in the old course, except those things forbidden, has found acceptance in the curriculum. We require libraries, workshops, outdoor excursions, laboratories, gymnasia for physical culture, kitchens with equipment, sewing-rooms, play-rooms, lavatories and hygienic cloak-rooms, bath-

rooms, and oftentimes specially fitted rooms for geography, history, drawing, and music.

In primary grades books are largely dispensed with, and the work in literature, story-telling, drawing, and nature study is almost wholly oral. Even games and social exercises are introduced as a part of instruction. Outdoor work in geography, drawing, and nature study in field and garden have introduced novel and unheard-of forms of instruction. Manual training and domestic science bring children to shops, workrooms, and kitchens; to the use of tools and processes which were once wholly foreign to instruction. The use of libraries for reading and reference has enlarged the scope of studies and revolutionized methods of study. The introduction of biography, literature, science, and manual arts into school courses has changed our estimate of the relative value of the old studies. Reading, writing, and spelling, dealing with the symbols of knowledge, have been brought into a new relation to geography, history, literature, and science, which deal directly with the rich content of life and experience. The forms of knowledge are made tributary to controlling thought, and these two groups of studies are now brought into close relation, which once stood out in total independence from each other. This involves a complete change in method in all the studies.

The whole attitude of the school is changing with

relation to trades and occupations. The incorporation of typical industries not only into the study, but into the activities of the school, begins to change its whole appearance and to take on the character of shops and farms, — this is one of the most striking transformations and seems to suggest a complete change of base. This is part of that new social attitude that the school is taking toward all the chief activities of men. The school is no longer an isolated institution; it is absorbing into its programme the typical activities of the outside world; it is partaking of the spirit and is animated with the ideas and feelings of practical life.

Teachers have also changed their attitude toward children, both in the discipline and in the instruction. They are milder and more sympathetic with young people, taking on some of the social and parental attitude. They are appreciative of physical and mental defects and peculiarities. They rule more kindly and rationally, and they instruct with more regard for what is suitable, interesting, and educative for the children.

All these modifications and this revamping of our school practice are closely bound up with fundamental changes in our theories of education. Casting aside the old glasses, we are trying to look at child nature without spectacles. Our views have changed in regard to mental power and discipline and the processes of growth and receptivity.

All these changes have come upon us so rapidly, and the schools as a whole lag so far behind what seem to be the plain requirements, that earnest reformers are apt to think that our school machinery is out of joint, or, as stated before, is antiquated and unsuited to modern needs.

Dr. Dewey suggests that in this apparent conflict between the old and the new, which has led to a good deal of jumble and confusion in our work, we may have tried the old plan of pouring new wine into old bottles with fatal results to both. At any rate he contends that a new organization of educational machinery, bringing all the main elements into harmony, is necessary.

"The problem becomes first an intellectual one and then a practical one. Intellectually what is needed is a philosophy of organization, a view of the organic unity of the educative process and educative material, and of the place occupied in this whole by each of its own parts." ("Educational Situation," p. 45.)

We may, at least, confess that the changes in the instruction and spirit of the school are so great that similar changes in its machinery must also take place. By machinery we mean the physical conditions, the rooms and apparatus, the daily programme, some of the modes of dealing with instruction, the text-books, the libraries, the shops, equipments, tools, materials, and the general plan of organizing these into effective instruments serving a common purpose.

Teachers and students trained in the specific lines of the older traditional studies find it difficult to adjust themselves to the necessary changes due to a changed curriculum. And yet the transformations that have actually taken place in recent years in the whole school machinery are almost marvellous. Many teachers have rapidly changed front and mastered the technique of new and radically different forms of instruction. An example of this rational readjustment to strange subjects and practices is the oral teaching of fables, fairy tales, and myths in primary grades. A few years ago this was a terra incognita to the great multitude of primary teachers. Likewise, excursions in geography and outdoor lessons in nature study were wholly new. The difficulties are so great and the contrast of the new mode of teaching to the old textbook recitation so marked, that teachers are only gradually overcoming the transitional difficulties. Manual training and cooking are now passing through a transition period of experiment and awkward adaptation. Even the teaching of primary reading and arithmetic has undergone such a succession of evolutions that the plans and devices now employed by skilful teachers would completely puzzle an old-fashioned master.

Programmes have been changed so as to give more time and longer recitation periods for oral instruction. A rearrangement of desks and furniture to

make way for games and calisthenics has been made. Shops with work benches and equipment of tools have been provided. School gardens are laid out with plots for different classes. Play-rooms are provided; excursion periods for outdoor study are scheduled.

All these things indicate that the new spiritual forces at work in the school are finding avenues of productive activity, that the new wine is shaping the new bottles; that the modification of material surroundings and readjustments to new and powerful influences, acting upon the school from without, are being accomplished.

The educational problem of working out this transition from the older ideas and forms of education to the newer may be analyzed into three parts.

1. The general theoretic organization of the whole body of educational ideas and agencies, including the estimate of relative values and the adjustment and correlation of studies in the entire plan of the school course.

2. The creation of those physical surroundings, — including the schoolroom, shop, garden, playground, and other material equipments most favorable to the execution of the general plan, — including also the larger environment of the schoolhouse and the best arrangement of the daily programme.

3. The education of teachers to a comprehensive grasp of the large scheme of training, to a practical

understanding of the necessary physical conditions, equipment, and organization of the school itself and to the broad scholarship in various studies, and professional skill in instruction necessary to good teachers.

In the proper and sufficiently extensive education and training of teachers we shall find the main solution of the problem. This responsibility lies heavily upon the Normal and training schools; upon the Departments of Education in the higher institutions; and upon superintendents and supervisors in cities, counties, and states. In nearly every important problem in education we are eventually forced back upon the question of the proper training of teachers. The above-named agencies for the training of teachers set the professional standard and lead the advance. The standard requirements set up by these institutions are generally agreed upon and may be briefly summarized thus: scholarship in the deep and liberal sense of that term; full acquaintance with educational ideas and theories; intelligent sympathy for child life and knowledge of the important bearings of child study; a clear understanding of the physical conditions of the school and its organization; skill in the technique of school studies; a broad grasp of the relations between the various subjects and of the continuous movement through the grades.

In addition to these there are two other standard requirements for teachers, which, in view of our present needs, call for special emphasis.

First is a strong progressive spirit and willingness to entertain new ideas coupled with an expansive energy in meeting new situations, and second is a strong flexibility and power of adaptation by which the effective combination of old and new can be made.

Education is passing through swift-moving changes somewhat analogous to those taking place in industrial life, due to new inventions and improved machinery. Skilled workmen are compelled to adapt themselves quickly to these changes or drop out of the industrial race. In the same way teachers must adjust themselves to radical and far-reaching changes in the course of study, in methods of instruction, and in the handling of school equipment and machinery.

THE TEACHER *VERSUS* THE COURSE OF STUDY

A COURSE of study may be a shackle binding the teacher to a fixed routine, or it may be a guide giving better direction to her free efforts.

If left to themselves without a course of instruction, most teachers would be hopelessly swamped. At the present time the problem of making a course of study is so comprehensive and complicated that few even experienced teachers would assume to lay out a plan for all grades in all subjects. It seems a presumptuous task for any one, no matter what is the length and variety of his experiences. And yet it is a problem that must be met and solved every year by hosts of teachers.

The great majority of teachers are young and inexperienced, and they, at their entrance upon the work, should find in the established course of study the matured solution of a whole group of difficult problems. To ask them to sit down and work out independently the solution of these problems before entering upon their duties as teachers would be equivalent to saying, Go to school for ten or twenty years and work out a course of study suitable for children.

A course of study liberally and practically laid out on the basis of matured theory and experience may be of the greatest service to all teachers, to those of greatest experience as much perhaps as to the younger. It must work out the subject-matter of each study in a rational and coherent plan, and this will guide the teacher safely through a multitude of perplexities. To be well planned, such a course must comprehend all the studies in a family and social grouping in such a conjunction that they mutually support one another and develop in harmony with each other and with the child's powers. Such a course must sift out the essentials from a vast body of knowledge materials, and the essentials too, not from the standpoint of the adult or the mature scholar, but from the standpoint of children who are passing up through a series of most remarkable physical and mental changes. And this whole course represents only a segment of a child's life, and should be vitally related to what precedes in early childhood, and what follows either in business or in the high school and college. Again, the great world outside, which is (whether we will or no) shaping this course of study, must be carefully scrutinized and the relation between child and social world kept in mind at every point.

Nor can any one lay out a good course of study and select and arrange topics for instruction who is not in close practical touch with the best methods of teaching; otherwise he will include in his course many

topics which later experience will prove unsuitable or impossible. A course of study also needs to be very flexible, so as to suit many kinds of teachers and schools and all sorts of children.

Over against this course of study stands the teacher. What attitude of friendship or hostility is she to take toward it? While it seems to hold out a friendly and helping hand, it may be laying an irksome and irrational routine upon her. What kind of a course of study can aid a teacher while leaving her free to the best exercise of her ingenuity and skill? The freedom and spontaneity of the teacher should be guarded and encouraged.

The course of study itself, in order to give rational freedom and encouragement to a teacher, should be an outline of leading topics rather than a description of details. Most of our courses are meagre outlines, but they are often backed up by a definite series of text-books and by recurrent examinations which are calculated to define the work almost to its minutest details, and leave the teacher little or no chance for self-activity. If teachers are to have any real freedom, it must lie in the power to modify the course in regard to the selection and emphasis of topics, and especially in all the details of executing plans. The best general course that could be laid out by any one person or group of persons would need to be modified in order best to meet the conditions of any special class or school. Besides this there is a broad, boundless

region for the exercise of individual ingenuity and initiative if the details of method are left to the teacher's option.

In spite of its narrow limits the course of study should manage to suggest to teachers a wide range of great studies and interests. It should be the open entrance to a treasure-house; though only an outline, there should be a clear suggestion of concealed riches.

No matter what the ability, training, and equipment of the teacher, he should realize that the course of study is a far larger thing than any teacher. Any single subject, like literature, discloses a broad realm of studies, so rich and fruitful in great works that the teacher is forcibly reminded of his littleness. The course of study as a whole is a numerous family of these large children. As the teacher casts his eye over these far-stretching realms of knowledge, he need have no fear that he may ever weep for lack of fields to conquer. The watchword of the teacher in the presence of a good course of study should be *enlargement, expansion,* opportunity to grow and stretch one's powers so as to fulfil, to some degree, these large opportunities.

On the other hand, a course of study which heaps up a great variety of detailed material in each subject, and lays emphasis upon the quantity rather than the quality of knowledge, may produce the opposite effect. It oppresses the teacher with the burden of

fixed and laborious tasks. It seems to leave no avenue open for freedom and self-realization. It is heavy with the burden of limitless tasks.

But a course of study which strikes only at main centres, which leaves the teacher free to enlarge or limit the treatment of topics according to the need of individuals and of classes — such a course combines richness of content with freedom of individual treatment, and is an encouragement and stimulus to energetic teachers.

The course of study of late years has been so much enriched with the best literature, history, and science, there has been such a response to the demand for physical, industrial, and artistic activity, that we may entrench ourselves in every school subject, and find that we occupy commanding ground and have a broad outlook. It is hardly too much to say that all ages (including our own, with its great social forces) have contributed their best materials for the enriching and rounding out of our common school curriculum. If now we can only simplify and organize this accumulated knowledge, if we can but pick out the few masterful centres of each subject and bring the studies into proper relation, we shall in time develop a course of study which will command the respect and enthusiasm of teachers for the richness of its content and for the freedom of its opportunity.

FLEXIBILITY AND ADAPTABILITY OF THE COURSE OF STUDY

A COURSE of study should be laid out in such a way that it may be flexible and capable of adaptation to many different minds. There are minds of different capacities and of special bents, and when, as is usually the case, children of these widely differing endowments meet in the same class, the course should be able to suit the needs of each according to his ability or specialty.

It was said of Lord Bacon that his mind resembled the fabled tent described in one of the stories of the "Arabian Nights." It could be folded up into a small compass and serve as a plaything in a lady's hand, or it could be spread out so as to shelter an army.

Something of this magic quality of expansibility and adaptation is needed in a course of study.

Now a course of study which is crowded with a mere array and enumeration of facts and items to be fixed and ordered in the mind is not capable of much adaptation. A bright intellect will do the work quickly, and a slow one slowly and ponderously. Our present crowded course of study is largely of this fixed and inflexible character, and the same lesson does not fit different pupils and supply them all

with full work. A crowded course of study may tax a strong mind to its limit, but it may be an oppressive burden to an average mind and a complete discouragement to a slow mind of very respectable quality.

A crowded and exactly defined course of study, therefore, does not lend itself to adaptation to various minds.

To this purpose we must centre effort more upon a few important ideas and topics, each of which has considerable expansibility. We may select for each year's work in a study a few important centres of thought and a series of strong types, each of which by virtue of its typical character or wide-reaching relations is capable of greater or less extension according to the needs and capacities of pupils. The topic on the constitutional convention of 1787 is exactly of this character. Though the whole class should spend a month upon it, by the proper use of references it can be adapted to the most varied abilities. It can be made thoroughly interesting and instructive to every member of a class, and the abler students can be most profitably employed in a wider use of biographical and historical references.

From this point of view any really important topic in history, geography, science, or literature may be given a strong treatment suited to the average ability of the class, and at the same time more capable students may be turned loose into a broader, more expanded reference study suited to their abilities.

Such a plan as this of centring upon a few great topics may be defended upon the following grounds:—

1. It brings the essential and really important things in a study into a clear light.

2. It provides for thoroughness and full mastery of what is undertaken, without overburdening.

3. It adapts instruction to the wide divergencies in ability in the same class, providing adequate employment to the powers of the best pupils.

4. It will provide an outlet for the expansion of different pupils according to their different individualities or bents. A child strong in history will have a chance to enlarge his field of effort in that line and satisfy his preferences. A lover of scientific studies will have the same opportunity in that direction. It would be an admirable plan to have a course of study which in its essentials could be mastered by average pupils in the regular school hours. This would leave the home study and leisure largely free to expansion along the preferred lines of history or science or literature or manual training.

Such a plan as this would offer also an open door for an easier advancement of a bright pupil to a higher grade or to the skipping of a grade. In any well-arranged course of study it will be found that the same great centres of thought, or those closely allied to them, recur from year to year. The same institutions of society or government, the same primary occupations, the same fundamental ideas in science

or history, come again into view. Now the forward student who goes into a deeper and wider treatment of his topics is already anticipating much of this later study and is capable of leaping forward to a more advanced place.

This of course is but one of several means of adapting instruction to diverse individualities, but it is one as yet little used because the conditions imposed by our present course of study and methods of teaching do not favor it, but are distinctly opposed to it.

It will be remembered that in the chapter on simplifying and organizing the course of study, we explained the grounds of selecting great focal topics in which many or all studies centre, and also the mode of selecting for each grade a short series of important types. In the course of study here submitted this fundamental idea of a simple course is worked out. This expansibility of the chief topics in any study not only gives an adjustment to different minds, but opens up the field of individual effort and is a means of systematic encouragement of self-reliant and somewhat independent work. It gives a special meaning and value to reference studies and opens up the most interesting part of study which lies just beyond the text-book in the richer domain of science, history, and literature. To cultivate a taste for such studies among capable students is for them a chief benefit. It is the most appropriate mode of bringing them to a voluntary and wise use of their time.

READING

THE following list of books, arranged according to grades, is designed to supply the children from the fifth to the eighth inclusive, with excellent reading matter in the form of complete masterpieces of American and English literature. It includes, besides the books for regular reading lessons, a large list of collateral and closely related works for the children.

1. The books apportioned to each grade are divided into two series. The first series is carefully selected to serve as regular reading-books for that grade. Almost without exception they are complete works, or collections of complete poems, stories, etc. Many of them are very familiar and have been much used in the schools. The number of books for each grade is large, so as to have room for choice and adaptation to each class.

The second series consists of closely related collateral readings derived from a much wider range of books in literature, history, and science. Many of these books of the second list are not so strictly masterpieces of literature, but of a secondary rank as prose renderings of the great poems, myths, and stories of other languages, also American and Euro-

pean history stories. These materials are well adapted for the reference studies and home readings of children. They all deal with interesting and worthy subjects of thought in a simple style. Many of these books, however, are great and permanent works of literature. They are materials, also, which the teacher should be familiar with. They should be constantly referred to and discussed in connection with the first series. It is quite probable that some teachers will prefer books of the second series for regular reading in the place of some suggested in the first series.

2. This list of books is, of course, tentative. There are other literary works as good, perhaps, but not a few difficulties stand in the way of the best selection. A few of the best materials are scattered in books not available for school purposes. Some of the finest of our longer classics have not been tested much in school use. There is, however, an abundance of choice English works, complete, well printed and bound, in cheap, school-book form. The chief difficulty, after all, is in selecting and arranging the best of an abundant and varied collection of excellent literature. This inspiring problem lies but partly solved at the threshold of every teacher's work. It requires extensive knowledge of literature and experience in its uses in classes. A masterpiece may be read in several grades, and teachers will differ in judging its true place. Schools and classes differ also in

their capacity and previous preparation for classic readings, so that no course of reading will fit all schools, or, perhaps, any two schools. Many principals will prefer to use the books one or two grades lower, or higher, than here indicated. Every teacher should use such a list according to his best individual judgment as based upon the needs of his school. This list was discussed and partly made out in conference with a number of experienced superintendents, and much variety of opinion was expressed as to the best grade for the use of a number of the selections.

3. The books chosen for each grade are designed to be a suitable combination of prose and poetry, of short and long selections from history, science, and letters. Variety in subject-matter and style is required in each grade, although certain strong individual characteristics are expected to appear in the literature of each year's work. Many of the shorter poems fit in well with longer masterpieces in prose and verse. Some of the epics, myths, and historical episodes are told in both prose and verse. The children may well meet and study them in both forms. If from four to six larger masterpieces could be read each year, and these could bring out the style and quality of so many authors, if a number of suitable shorter pieces could be read and related to the former, the many-sided influence of literature would prove each year effective. Literature is the broadest of all subjects,

both as a basis of culture and for the unification of the varied studies. It touches every phase of experience and knowledge along its higher levels, and overlooks the whole field of life from the standpoint of the seer and poet. The classic readings should aim at the completeness, variety, and elevation of thought which literature alone can give.

4. The list of books for each year includes two or three books of miscellaneous collections of classics in prose and verse. Many of the selections are short and some fragmentary. Such are the three volumes of "Open Sesame," the "Golden Treasury of Songs and Lyrics," "Children's Treasury of English Song," and "Book of Golden Deeds." In each of the books named is found a variety of material suited perhaps to two or three grades. In most of the books just named it is not intended in our plan that all the selections should be read through in succession. It will be better for the teacher to select from those collections such choice poems, stories, etc., as will enrich and supplement the longer classics, and give that added variety so needful. Many of the finest classic poems in our language are short, and should not be omitted from our school course. They should be read and some of them memorized by the children. It would be well if the teacher had in each grade one or two sets of such books of choice miscellaneous materials from which to select occasional reading. The regular readers used by the children would consist of the

longer masterpieces, which would be supplemented by the shorter selections. In this way greater unity and variety might be achieved within the limits of each grade.

5. Information books and supplementary readers in history, geography, and natural science have been excluded, in the main, from our lists. The test of literary excellence has been applied to most of the books chosen. De Quincey's distinction between the literature of knowledge and of power is our line of demarcation. It seems to us probable that the future will call for a still more stringent adherence to this principle of selection. Information readers are good and necessary in their place in geography, history, and natural science; but they are not good enough to take the place of classics in reading lessons. The only exceptions to the rule of classics are the prose renderings of the old classics, as the "Story of the Odyssey," and the biographical stories from history. Both these have so much of interest and stimulus for the young that they seem to harmonize with our plan. But criticism may yet expose their inadequacy.

It is our plan, in brief, to limit the reading work mainly to the choice masterpieces of the best authors, and to render these studies as fruitful as possible in spiritual power. If supplementary reading materials are used at all, let them be those which will strengthen the influence of the classics.

It has been our plan to collect in the "Special

Method" devoted to geography, history, and natural science, a full list of the supplementary readers and information books in those subjects.

6. In our list, however, is included quite a number of classic renderings of science and nature topics. Such are "Wake Robin," "Birds and Bees," "A Hunting of the Deer," etc., "Sharp Eyes," etc., "Succession of Forest Trees," "Up and Down the Brooks," "Water Babies," "The Foot-path Way," "Madam How and Lady Why," "Wilderness Ways," "In Bird Land," and many others.

These books, however, belong to the literature of power. They look at nature through the eyes of poet and artist and enthusiast. They are not cold, matter-of-fact delineations. They unfold the æsthetic and human side of nature, the divinity of flower and tree. They are the better communings of the soul with nature, and are closely related in spirit to the poems of nature in Bryant, Wordsworth, Tennyson, and other poets. There has been a chasm between them and our text-books in science which needs bridging over. Now that science is beginning to be taught objectively, experimentally, and inductively, there will be much less of a hiatus at this stage, because there is so much that is powerfully stimulating in nature study.

7. Several books are named twice in the lists, first as books of reference, and in a later grade for the use of children in regular reading. We have been

especially careful in selecting appropriate books in the first list for each grade adapted to the age of the children. These books for regular reading will be used by every child, so that they should be fitted to the average ability. The reference books for collateral reading in the second series of each grade may be more difficult in some cases, as they will be used, in part, only by the stronger pupils.

There are certain groups of kindred books, like the Greek myths, that are distributed through three or more grades. It is not expected that any child will use all of these books, as several of them may deal with the same story, like the "Iliad" or "Odyssey." It seemed best to include all the important renderings of these stories, and leave the teacher to choose among them for his class.

8. To give more specific aid to teachers, most of the books are briefly described, and some notion of their special worth and fitness indicated. It is hoped that these short descriptions will be of considerable help to young teachers in making selections for their classes.

9. Many of the best and most commonly used books are published by several companies. In such cases the names of the different publishers are indicated in connection with each book.

10. By an examination of these lists the teacher of any grade will discover that, in order to teach well, she must be acquainted with the books used in one

or two grades, both above and below her own. All the chief groups of books in literature run through three or four grades, and the teacher in any grade needs to get a comprehensive view of the important groups of books used in her classes.

11. There are certain peculiar difficulties connected with the reading of longer classics which are much less frequently met with in the usual school readers. These difficulties are of such a real and serious kind that many teachers are apt to be discouraged before success is attained. Complete classics like Webster's speeches, "Julius Cæsar," "Snow-Bound," "Marmion," and "Evangeline" have been regarded as too long and difficult for school purposes. We have found, however, that the greater length, if rightly utilized, only intensifies the effect of a masterpiece. The chief objection is the greater language difficulty (hard and unusual words, proper names, etc.) of the longer classics. This is a real obstacle and must be fairly met. It is impossible to grade down the language and thought of a great writer. It is necessary to bring the class up to his level rather than bring him down to theirs. This requires time and skill and perseverance on the teacher's part, and labor and thought in the children. It may require a week or longer to get a class well under way in "Lady of the Lake," "King of the Golden River," or the "Sketch-Book." But when well done it is a conquest of no mean importance. The language, style, and characteristics

of the author are strange and difficult. The scales must drop from children's eyes before they will appreciate Ruskin or Tennyson or Emerson. The wings of fancy, the æsthetic sense, do not unfold in a single day. But if these initial difficulties can be overcome, we shall emerge soon into the sunlight of interest and success. It takes a degree of faith in good things and patience under difficulties to attain success in classic readings. Even when the teacher thinks he is doing fairly well, the parents sometimes say the work is too hard and the verbal difficulties too great. Generally, however, parents are satisfied when children work hard and are interested.

Again, children whose reading in the lower grades has been of the information order lack the imaginative power that is essential to the grasp and enjoyment of any masterpiece. The sleeping or dulled fancy must be awakened. The power to image things, so natural to the poet, must be aroused and exercised. The lack of training in vivid and poetic thought in early years is sure to make itself felt in deficient and languid thought and feeling in the higher grades. But we cannot afford to give up the struggle. We may be forced to begin lower down in the series of books, but anything less than a classic is not fit for the children.

12. The leading publishing houses are now competing vigorously in bringing out the best complete classics in cheap, durable, well-printed form for

school use. In our list the names of the publishers are given. Most of the companies can be addressed in Chicago. Most of the companies publish the classics complete. Most of the books bound in boards or cloth range in price from twenty-five to fifty cents. The pamphlet editions are from ten to fifteen cents. The larger books of miscellaneous collections and some of the science classics range from seventy-five cents to a dollar and a quarter.

FIFTH GRADE

I. BOOKS FOR REGULAR READING LESSONS

Hiawatha. Houghton, Mifflin, & Co.; The Macmillan Co. Well suited for reading. Commonly used in several grades.

Lays of Ancient Rome (Macaulay). Maynard, Merrill, & Co.; Houghton, Mifflin, & Co.; The Macmillan Co. The four ballad poems. Good school reading for children. Names somewhat hard at first. Very stimulating and heroic.

King of the Golden River (Ruskin). Ginn & Co.; Houghton, Mifflin, & Co. Much used. Excellent story and reading.

Tanglewood Tales (Hawthorne). Houghton, Mifflin, & Co. Companion book to the Wonder Book. Excellent matter for reading.

Water Babies (Kingsley). Ginn & Co.; The Macmillan Co. Interesting story. Good also for home reading.

Ulysses among the Phæacians (Bryant). Houghton, Mifflin, & Co. Simple and easy. Poetic in its rendering.

Tales from English History (prose and verse). Harper Bros. Stories and ballads of the leading periods of English history from the best authors. Illustrated.

Gulliver's Travels. The Macmillan Co.; Houghton, Mifflin, & Co.; Ginn & Co. Somewhat difficult in spots. Very interesting to boys and girls.

Adventures of Ulysses (Lamb). Ginn & Co. Well told, giving complete outline of the whole story.

Heroic Ballads. Ginn & Co. Scotch and English and many later and American ballads.

The Pied Piper and Other Poems (Browning). Houghton, Mifflin, & Co. Also other poems and ballads of Browning.

Some Merry Adventures of Robin Hood (Pyle). Scribner's Sons. Short school edition.

The Ways of Wood Folk (Long). Ginn & Co.

The Children's Hour (Longfellow). Houghton, Mifflin, & Co.

Squirrels and Other Fur-Bearers (Burroughs). Houghton, Mifflin, & Co.

2. SUPPLEMENTARY AND REFERENCE BOOKS

Arabian Nights (Hale). Ginn & Co. Many of the best stories of the collection, including a number of the less familiar ones. Also for regular reading.

Ten Boys on the Road from Long Ago. Ginn & Co. A book interesting and much used. Good for reading in fourth, fifth, and sixth grades. Also for sight reading.

Robinson Crusoe. Ginn & Co.; The Macmillan Co. Much reduced and simplified from the original. A complete and more difficult edition is published by Houghton, Mifflin, & Co.

The Odyssey of Homer (Palmer). Houghton, Mifflin, & Co. A complete prose translation of the entire Odyssey. Probably the best. Good for fifth and sixth grades.

The Odyssey (Butcher and Lang). Excellent but somewhat more difficult than Palmer's translation. The Macmillan Co.

Bryant's Odyssey. Houghton, Mifflin, & Co. A simple, poetic rendering of the whole Odyssey. A good teacher's book. Use parts in class.

Bryant's Iliad. Houghton, Mifflin, & Co. Complete poetic translation. One of the best.

Heroes of the Middle West (Catherwood). Ginn & Co. Good stories of the early French explorers of the Great Lakes and the Mississippi Valley.

Stories of American Life and Adventure. American Book Co. A good collection for general reading.

Pope's Iliad. Leach, Shewell, & Sanborn; Ginn & Co.; American Book Co.; Silver, Burdett, & Co. A famous rendering of the old Greek story. Only a few books or parts of the story included.

Secrets of the Woods (Long). Ginn & Co.

Arabian Nights (Clarke). American Book Co.

Colonial Children (Hart). The Macmillan Co.

Krag and Johnny Bear (Seton). Scribner's Sons.

Stories from Herodotus. Maynard, Merrill, & Co. Simple and interesting stories.

Jason's Quest. Leach, Shewell, & Sanborn. The story of Jason told in full. Interesting and well written.

Book of Golden Deeds. The Macmillan Co. A fine collection of historical and famous stories.

Historical Tales, American (Morris). J. B. Lippincott & Co. One of the best collections of American stories.

Greek Gods, Heroes, and Men. Scott, Foresman, & Co. A collection of Greek stories, both mythical and historical.

The Story of our English Grandfather (Brown). Public School Publishing Co.

The Story of the English (Guerber). American Book Co. A complete series of English history stories arranged chronologically, good for fifth and sixth grades.

Stories from English History (Church). The Macmillan Co.

Tales of Chivalry (Rolfe). Harper Bros. Good stories from Scott, mostly from Ivanhoe. Also the early life of Scott. Good for regular reading.

Boy's King Arthur (Lanier). Scribner's Sons.

A very interesting story for boys and girls. A good library book ($2.00).

The Story of Siegfried (Baldwin). Scribner's Sons. A full and attractive story of Siegfried's adventures. A good library book ($2.00).

Pioneer History Stories. Three Volumes: Pioneers of the Mississippi Valley; Pioneers on Land and Sea; Pioneers of the Rocky Mountains and the West. The Macmillan Co.

Open Sesame. Part II. Ginn & Co. A good collection of poems arranged in important classes.

The Story of the Greeks (Guerber). American Book Co. Mainly historical, giving the leading stories of Greek history.

The Court of King Arthur (Frost). Scribner's Sons. Large book. Story of King Arthur's Court well told. Good library book.

The Story of Troy. American Book Co. A short narrative of the Trojan War.

Story of the Odyssey (Church). The Macmillan Co. Library book for general reading. Simple.

The Story of Roland (Baldwin). Scribner's Sons. Large book for library. Good.

American Explorers (Higginson). Lee & Shepard. Excellent descriptions of early explorations. Good source material for pupils and teachers.

The Children's Life of Abraham Lincoln (Putnam). A. C. McClurg & Co.

Four American Naval Heroes (Beebe). Werner

School Book Co. A simple narrative of great naval conflicts.

SIXTH GRADE

I. BOOKS FOR REGULAR READING LESSONS

The Sketch-Book (Irving). Ginn & Co.; American Book Co.; Maynard, Merrill, & Co.; The Macmillan Co.; Houghton, Mifflin, & Co.; Educational Publishing Co. Rip Van Winkle and other American essays. One of the best books for sixth grade. Used also in fifth and seventh grades.

The Courtship of Miles Standish (Longfellow). Houghton, Mifflin, & Co.; The Macmillan Co. Excellent in many ways for sixth-grade children. A dramatized edition is also published.

The Christmas Carol (Dickens). The Macmillan Co.; Houghton, Mifflin, & Co.; Maynard, Merrill, & Co. Excellent as literature and for variety of style in class work. Used also in seventh grade.

Hunting of the Deer (Warner). Houghton, Mifflin, & Co. Including also How I Killed a Bear, and other admirable stories, in which the humor and sentiment are fine.

Snow-Bound and Songs of Labor (Whittier). Houghton, Mifflin, & Co. One of the best American poems for children. Used also in seventh and eighth grades.

Coming of Arthur and Passing of Arthur. Houghton, Mifflin, & Co.; Maynard, Merrill, & Co. In the

fine poetic style of Tennyson, but simple. Fitted also for seventh grade.

The Gentle Boy and Other Tales (Hawthorne). Houghton, Mifflin, & Co. A pathetic story of the Quaker persecutions in New England.

Tales of the White Hills and Sketches (Hawthorne). Houghton, Mifflin, & Co. The Great Stone Face in this series is one of the choicest stories for children in English.

Plutarch's Alexander the Great. Houghton, Mifflin, & Co. A good biography for children and serves well as an introduction to Plutarch.

Grandfather's Chair (Hawthorne). The Macmillan Co.; Houghton, Mifflin, & Co. The best stories we have of early and colonial New England history. Good also for seventh grade.

Children's Hour, Paul Revere, and Other Papers (Longfellow). Houghton, Mifflin, & Co. This contains also the Birds of Killingworth, and others of Longfellow's best short poems.

Birds and Bees, Sharp Eyes, and Other Papers (Burroughs). Houghton, Mifflin, & Co. These are among the best of Burroughs's books for children. Classic in style and choice in matter.

Hawthorne's Biographical Stories. Houghton, Mifflin, & Co.

Seven American Classics (Swinton). American Book Co. A good collection of American classics suited to this grade.

Three Outdoor Papers (Higginson). Houghton, Mifflin, & Co. Interesting studies of nature, in choice style.

Giles Corey (Longfellow). Houghton, Mifflin, & Co. A drama of the Salem witchcraft, with directions for its representation on the stage.

The Building of the Ship, The Masque of Pandora, and Other Poems (Longfellow). Houghton, Mifflin, & Co. Excellent. The Masque of Pandora could be rendered in dramatic form by children.

Mabel Martin and Other Poems (Whittier). Houghton, Mifflin, & Co. A choice collection of poems from Whittier. A good picture of New England life.

Baby Bell, The Little Violinist, and Other Prose and Verse (Aldrich). Houghton, Mifflin, & Co. Very choice poems and stories.

Open Sesame, Vol. II and Vol. III. Ginn & Co. Poems and ballads. A collection well arranged for various school use, for reading, recitation, and memorizing.

2. SUPPLEMENTARY AND REFERENCE BOOKS

Ten Great Events in History (Johonnot). D. Appleton & Co. Good collateral reading in this grade.

Lanier's Froissart. Scribner's Sons. A fine story for library ($2.00).

Child's History of England (Dickens). Hurst &

Co. A book much used. Should be in a school library.

Tales from Shakespeare (Lamb). The Macmillan Co.; American Book Co.; Educational Publishing Co.; D. C. Heath & Co. Designed as an introduction to the plays of Shakespeare. Language and style superior.

Pilgrim's Progress (Bunyan). Ginn & Co. The famous old story which all children should read. A book for the library and the home.

The Rose and the Ring (Thackeray). D. C. Heath & Co. Excellent humor for children.

Swiss Family Robinson. Ginn & Co.; Educational Publishing Co. A library book for school children.

Stories from Old English Poetry (Richardson). Houghton, Mifflin, & Co. An excellent series of stories from Chaucer and others.

Historical Tales, English (Morris). J. B. Lippincott & Co. A good collection of English history stories.

Selections from Irving. Leach, Shewell, & Sanborn. A variety of interesting selections from Irving's works.

The Conquest of Mexico (Prescott). Maynard, Merrill, & Co. The story of Cortés and his adventures, told by a master.

William Tell. Silver, Burdett, & Co. The drama of Schiller's Wilhelm Tell, translated into simple English. Adapted for representation.

Source Book of American History (Hart). The Macmillan Co. The parts bearing on the colonial history. Original sources, letters, etc.

Story of a Bad Boy (Aldrich). Houghton, Mifflin, & Co. A good narrative of boy life, humorous and entertaining.

Lay of the Last Minstrel (Scott). Maynard, Merrill, & Co.; Ginn & Co. One of the best descriptions of the old minstrelsy. Suitable for sixth and seventh grades.

Choice English Lyrics (Baldwin). Silver, Burdett, & Co. A great variety of choice poems, ballads, lyrics, and sonnets.

Poetry of the Seasons (Lovejoy). Silver, Burdett, & Co. A choice collection of nature poems.

Wilderness Ways (Long). Ginn & Co. An interesting study of wild animals, birds, etc.

Famous Allegories (Baldwin). Silver, Burdett, & Co. A good selection for reference reading and for teachers.

Rab and His Friends (Brown). Educational Publishing Co.; D. C. Heath & Co. Interesting story of a dog.

Story of Oliver Twist (Dickens). D. Appleton & Co. Suitable for introducing children to Dickens.

Heroes and Patriots of the Revolution (Hart). The Macmillan Co.

Swiss Family Robinson. Ginn & Co. Educational Publishing Co.

Don Quixote. Ginn & Co; Scribner's Sons.

Hans Brinker, or the Silver Skates (Dodge). Century Co.

Tales of a Traveller (Irving). American Book Co.; Maynard, Merrill, & Co. Various interesting stories of adventure.

Pilgrims and Puritans (Moore). Ginn & Co. One of the best books on the early history of Plymouth and Boston. Very simple and well told.

Stories of Waverley (Gassiot). The Macmillan Co. For reference reading. Stories from Scott.

Golden Treasury of Songs and Lyrics (Palgrave). The Macmillan Co. A collection of the best songs and lyrical poems.

Biographical Stories (Hawthorne). Houghton, Mifflin, & Co. This includes short biographies of West, Franklin, Johnson, Cromwell, and others.

Boys of '76 (Coffin). Harper Bros. A realistic account of Revolutionary scenes.

Stories of Bird Life (Pearson). B. F. Johnson Publishing Co. Simple descriptions by a close observer of birds.

Our Country in Prose and Verse. American Book Co. Excellent collection for children's use.

Stories of Animal Life (Holden). American Book Co.

Stories from English History (Church). The Macmillan Co. In two volumes. The second part is especially suited to sixth grade. Parts also of Part I.

Children's Stories of American Literature (Wright). 1660–1860. Scribner's Sons. Short biographies of the chief American writers.

SEVENTH GRADE

I. BOOKS FOR REGULAR READING LESSONS

Evangeline (Longfellow). Houghton, Mifflin, & Co. This has been much used in seventh and eighth grades.

Sella, Thanatopsis, and Other Poems (Bryant). Houghton, Mifflin, & Co.; Maynard, Merrill, & Co. Some of Bryant's best poetic productions.

Sohrab and Rustum (Arnold). American Book Co.; Leach, Shewell, & Sanborn. Style simple but highly poetic. Used also in eighth grade.

Cricket on the Hearth (Dickens). Houghton, Mifflin, & Co.; The Macmillan Co.; Maynard, Merrill, & Co.

Enoch Arden and the Lotus Eaters (Tennyson). Maynard, Merrill, & Co. Used in seventh and eighth grades and high schools.

Merchant of Venice (Shakespeare). American Book Co.; Ginn & Co.; The Macmillan Co. The best of Shakespeare's for this grade. Parts of it are often dramatized and presented. Much liked by the children.

Tales of a Grandfather (Scott). Ginn & Co. Stories of Wallace, Bruce, Douglas, and other

Scotch heroes. Should be read only in parts in class. Library book.

Poems of Emerson. Houghton, Mifflin, & Co. Historical and nature poems, with a good introduction. A small but important collection of poems for older children.

The Cotter's Saturday Night (Burns). Houghton, Mifflin, & Co. Contains also Tam O'Shanter and other poems of Burns's best.

Bunker Hill, Adams, and Jefferson (Webster). Houghton, Mifflin, & Co.; American Book Co. Historical, patriotic, and simple in style. The best of Webster's speeches for seventh and eighth grades.

Poor Richard's Almanac (Franklin). Houghton, Mifflin, & Co. This contains also interesting papers and letters by Franklin. The proverbs of Franklin are well deserving the study of children.

Scudder's Life of Washington. Houghton, Mifflin, & Co.

Source Book of American History (Hart). The Macmillan Co.

Golden Treasury of Best Songs and Lyrical Poems (Palgrave). The Macmillan Co.

Grandfather's Story and Other Poems (Holmes). Houghton, Mifflin, & Co. Some of Holmes's best patriotic and humorous poems.

The Plant World (Vincent). D. Appleton & Co. A superior collection of extracts from great scientific

writers. One of the best science readers for upper grades.

Poetry of the Seasons (Lovejoy). Silver, Burdett, & Co. Good collection for reading and various uses.

William Tell (McMurry). Silver, Burdett, & Co. Suitable for seventh-grade reading. A drama.

2. SUPPLEMENTARY AND REFERENCE BOOKS

Rules of Conduct (Washington). Houghton, Mifflin, & Co. Containing also his letters, farewell address, and other important papers.

Daffydowndilly and Biographical Stories (Hawthorne). Houghton, Mifflin, & Co. Good reference material for this grade.

Shakespeare's Tragedies (Lamb). American Book Co.; The Macmillan Co. Companion book to the Comedies.

Natural History of Selborne (White). Ginn & Co. A famous old book, interesting both in style and content. One of the first books of real nature study.

Letters (Chesterfield). Ginn & Co. Entertaining and unique. Valuable for reading extracts to the school.

Plutarch's Lives. Ginn & Co. A book that all grammar school children should be encouraged to read.

The Two Great Retreats (Grote-Segur). Ginn & Co. Retreat of the ten thousand Greeks, and Napoleon's retreat from Russia.

The Alhambra (Irving). Ginn & Co. Most attractive descriptions and legends connected with the Alhambra.

Camps and Firesides of the Revolution (Hart). The Macmillan Co.

The Crofton Boys (Martineau). D. C. Heath & Co.

Orations on Washington and Landing of the Pilgrims (Webster). American Book Co. A few children may be encouraged to read these great speeches, among the best in our history.

Silas Marner (Eliot). Leach, Shewell, & Sanborn; American Book Co.; Ginn & Co. A good introduction for children to George Eliot's writings. Used in eighth grade and high school.

Vicar of Wakefield (Goldsmith). Ginn & Co.; American Book Co. One of the great books, permeated with Goldsmith's fine style and humor.

George Washington (Scudder). Houghton, Mifflin, & Co. The best life of Washington for grammar grades.

Two Years before the Mast (Dana). Houghton, Mifflin, & Co. A book of real power for boys and girls.

A Bunch of Herbs (Burroughs). Houghton, Mifflin, & Co. Good nature study for pupils and teachers. Also for regular reading.

Samuel Adams (Hosmer). Houghton, Mifflin, & Co. One of the best of American biographies. One

of the best descriptions of scenes in Boston just preceding the Revolution.

Tom Brown's School Days (Hughes). Houghton, Mifflin, & Co. A story for boys. Vigorous and true to life.

Last of the Mohicans (Cooper). Maynard, Merrill, & Co. A good book with which to introduce young people to Cooper's famous stories.

Franklin's Autobiography. Ginn & Co.; The Macmillan Co.; Houghton, Mifflin, & Co.; American Book Co. A book that all young people should read. Valuable in many ways.

Uncle Tom's Cabin (Stowe). Houghton, Mifflin, & Co. A library book for home reading.

From Colony to Commonwealth (Moore). Ginn & Co. Simple account of the early events of the Revolution about Boston.

Orations on Washington and Landing of the Pilgrims (Webster). American Book Co.

Piccola (Saintine). Ginn & Co.

Stories from the Classic Literature of Many Nations (Palmer). The Macmillan Co.

The Gold Bug and Other Tales (Poe). Houghton, Mifflin, & Co.

Twelve Naval Captains. Scribner's Sons. Short biographies of naval heroes.

Open Sesame, Vol. III. Ginn & Co. A collection for various uses, prose and verse. Patriotism, sentiment, humor, and nature.

Birddom (Keyser). D. Lothrop & Co. Good for regular reading. Written in the fine style of a true lover of nature.

Town Geology (Kingsley). The Macmillan Co. An interesting book for those predisposed to science.

Children's Stories of American Literature (1860–1896) (Wright). Scribner's Sons. Short biographies of recent American writers.

American War Ballads and Lyrics (Eggleston). G. P. Putnam's Sons.

EIGHTH GRADE

I. BOOKS FOR REGULAR READING LESSONS

Vision of Sir Launfal (Lowell). Houghton, Mifflin, & Co. One of the best poems in English for school use.

Julius Cæsar (Shakespeare). American Book Co.; The Macmillan Co.; Silver, Burdett, & Co. Well suited for eighth-grade study and presentation. Used also in high schools.

Tales of a Wayside Inn (Longfellow). Houghton, Mifflin, & Co.

Bunker Hill, Adams, and Jefferson (Webster). Houghton, Mifflin, & Co.

Sir Roger de Coverley (Addison). American Book Co.; Houghton, Mifflin, & Co.; Leach, Shewell, & Sanborn; Silver, Burdett, & Co. Excellent study for children in eighth grade. Also used in high schools.

In Bird Land (Keyser). A. C. McClurg & Co. A book adapted to awaken the children to a sympathetic observation of birds.

Lady of the Lake (Scott). Maynard, Merrill, & Co.; American Book Co.; Ginn & Co.; Houghton, Mifflin, & Co.; The Macmillan Co. An attractive study. Somewhat difficult.

Marmion (Scott). Ginn & Co.; Maynard, Merrill, & Co.; Houghton, Mifflin, & Co; The Macmillan Co. A great historical picture, full of interest.

The Great Debate (Hayne-Webster). Houghton, Mifflin, & Co. A fine study of forensic debate. Incidentally a deeper appreciation of history.

A Bunch of Herbs (Burroughs). Houghton, Mifflin, & Co. A very suggestive study of common plants, trees, weather, etc.

Burke on Conciliation. The Macmillan Co.; Leach, Shewell, & Sanborn; Ginn & Co.; Silver, Burdett, & Co.; Houghton, Mifflin, & Co.; American Book Co. A great study both as literature and as history. One of the best studies in American history before the Revolution.

The Gettysburg Speech (Lincoln). Houghton, Mifflin, & Co. The inaugurals, an essay by Lowell, on Lincoln, and other papers.

The Deserted Village and The Traveller (Goldsmith). The best of Goldsmith's poems. Also shorter poems.

Franklin's Autobiography. Ginn & Co.; Hough-

ton, Mifflin, & Co.; The Macmillan Co.; Maynard, Merrill, & Co.; American Book Co. Partly for class use and partly for reference reading.

Plutarch's Lives. Ginn & Co. A few for class reading. Others for reference.

Two Great Retreats (Grote-Segur). Ginn & Co. Good sight reading, and for reference.

Peter the Great (Motley). Maynard, Merrill, & Co. A very interesting essay in superior style.

The Succession of Forest Trees, Wild Apples, and Sounds (Burroughs). A very attractive nature study.

Abraham Lincoln (Schurz). Houghton, Mifflin, & Co.

2. SUPPLEMENTARY AND REFERENCE BOOKS

Ruskin's Selections. Ginn & Co. Longer selection from Ruskin. Excellent also for regular reading.

My Hunt after the Captain, etc. (Holmes). Houghton, Mifflin, & Co. A very entertaining description of scenes during war times.

Don Quixote (Cervantes). Ginn & Co.; The Macmillan Co. A book that children should be encouraged to read. Its satire and humor they should learn to appreciate.

Ivanhoe (Scott). Ginn & Co.; American Book Co.; The Macmillan Co.; Houghton, Mifflin, & Co. The best introduction to Scott's novels, in connection with school studies.

The Abbot (Scott). Ginn & Co.; American Book Co. One of Scott's best stories.

Introduction to John Ruskin. Leach, Shewell, & Sanborn. Selections on Nature, Art, Sociology, and Ethics.

Rob Roy, and Quentin Durward (Scott). Ginn & Co. Good library books.

The House of the Seven Gables (Hawthorne). Houghton, Mifflin, & Co. A New England story in Hawthorne's style. A good home study for children.

The Boy's Browning. Dana Estes & Co. A good collection of the simpler poems adapted to younger readers.

Yesterdays with Authors (J. T. Fields). Houghton, Mifflin, & Co.

Tale of Two Cities (Dickens). Ginn & Co.; American Book Co.

The Talisman (Scott). The Macmillan Co.; American Book Co.; Ginn & Co.

Treasure Island (Stevenson). Scribner's Sons.

The Foot-path Way (Torrey). Houghton, Mifflin, & Co. One of the best books for cultivating an appreciation for nature.

The Old Manse and A Few Mosses (Hawthorne). Houghton, Mifflin, & Co. A pleasing account of the old house and its associations.

News from the Birds (Keyser). D. Appleton & Co. Excellent study and observation.

Peasant and Prince (Martineau). Ginn & Co. An interesting narrative of French life just before the Revolution.

A Book of Famous Verse (Repplier). Houghton, Mifflin, & Co. A superior collection of poems.

Nature Pictures by American Poets (Marble). The Macmillan Co. Choice poems descriptive of nature.

Seven British Classics. American Book Co. A good collection of English masterpieces. Adapted also for regular reading in seventh and eighth grades.

Star Land (Ball). Ginn & Co. A very interesting and well-written introduction to astronomy.

Life of John Quincy Adams (Morse). Houghton, Mifflin, & Co. The Statesmen Series.

Poems of American Patriotism (Matthews). Scribner's Sons.

An enlarged list of books for teachers is found in the "Special Method in the Reading of English Classics."

LANGUAGE

THE "Special Method in Language" gives an analysis of the reasons for the present course of study in language. It contains a full discussion and illustration of method in its various grades and topics touching the following points: —

1. The ability to use good English in writing and speaking is the chief aim.

2. Language work is closely identified with all the studies of the school. Language lessons should spring largely from lessons in literature, history, geography, and elementary science. On the other hand, language lessons should be constantly applied in all the other studies.

3. A well-graded series of lessons, for the purpose of correcting common errors in speaking and writing, must be systematically taught.

4. Composition exercises should render correct writing of English easy and habitual. Freedom and spontaneity in composition should be encouraged.

5. The spelling exercises should be chiefly incidental to the language and other studies.

6. Grammar in its leading topics is reserved to the seventh and eighth grades, and should not be imposed upon the children earlier.

FIFTH GRADE

PRELIMINARIES TO LANGUAGE IN FIFTH GRADE

Efficient use of language depends chiefly upon the constant attention given to correct speech and written work in the other studies.

In fifth grade there should be special care to apply all the forms of correct language taught in the previous grades.

So important is this application that advanced language work could better be neglected than this faithful review overlooked.

As a means of directing attention to this review and application of previous lessons, the first two or three months of fifth grade might well be given to such review drills.

This insistence upon correct usage applies also to the varied forms of oral work in fifth grade, such as the oral narratives in history, the reproductions of geography, the reports on nature study, and to all other forms of recitation work as well as to any written papers and examinations. In all these, perpetual attention to correct forms is necessary.

1. *Composition.*

At this age the compositions should begin to show some degree of skill in the full, accurate, and apt expression of thought. The topics upon which children are asked to write should be selected with a view to the knowledge and preferences of the

children. Biography, travel, and lively story appeal to many, while nature study, machines, and inventions may interest others.

The full outlines furnished by the history stories and geographical types furnish an excellent basis for a part of the compositions.

For example of this, see chapter of Illustrative Lessons.

Exercise care in spelling, capitals, and punctuation.

2. Spelling exercises may be derived from

(*a*) mistakes in the composition papers;

(*b*) difficult and new words in reading and other lessons;

(*c*) reviews of earlier lessons on homonyms, contractions, abbreviations, and rules for plurals.

3. The *paraphrasing* of familiar stories and poems from memory provides a lively kind of board or seat work in which faults in language and composition can be quickly corrected. Give freedom of expression. Criticise the work in class and compare with the original in thought and language.

4. *Business Letters and Social Forms.*

Standard forms of letters should be mastered.

Letters of invitation and declination as usually given in the language books.

Bills and receipts, inspection of customary bills and business papers. Write out the forms.

In all these forms require accuracy and neatness.

5. Inspection of punctuation as found in the readers and other text-books.

Develop and illustrate the chief rules for the use of capitals, commas, apostrophes, and quotation marks.

Give dictation exercises to test the use of these markings.

Punctuate poems and prose passages taken from authors and then compare with the original.

6. *Irregular Verbs.*

Review the full table of irregular verbs and their parts.

Make a special study of the harder verbs; as, *lie* and *lay*, *sit* and *set*; *to be*, *do*, *fly*, *get*; and the auxiliaries, *shall* and *will*, *may* and *can*.

Make many sentences, to illustrate and confirm these various uses.

7. *Homonyms and Synonyms.*

cellar — seller	chews — choose	colonel — kernel
creak — creek	hose — hoes	in — inn
lesson — lessen	mail — male	night — knight
pedal — peddle	plain — plane	alter — altar
all — awl	aloud — allowed	been — bin
fir — fur	soul — sole	tacks — tax

Give various dictation and drill exercises for the spelling, meaning, and use of these words.

8. *Abbreviations.*

Acct., Hon., Gov., Pres., Co., Jr., Sr., M.D., Prof., Supt., Maj., Sen., Rep., Messrs.

Review earlier abbreviations.

Review contractions and illustrate their use in sentences and in conversation.

9. Correction of errors heard out of school.

These to be reported and discussed in class.

Opportunity to review earlier lessons.

10. *Use of the Dictionary.*

Regular exercises in dictionary interpretations.

Words for these lessons derived from other studies; as, reading, geography, history, and science.

Review of dictionary markings for pronunciation and accent.

Drills upon vowel and consonant sounds.

Lists of prefixes and suffixes, and their meaning.

Root words and derived words illustrated.

Children, after a few of these lessons, should begin to use small dictionaries as reference for self-help in reading and other studies.

SIXTH GRADE

1. *Independent Use of the Dictionary.*

Regular use of the dictionary with assignments for dictionary study in reading and language lessons. How to use the dictionary appendix.

Careful review of phonics and drill in the correct use of sounds. Diacritical marks.

Syllabification and accent of words.

Teach the use of cyclopædias and other reference books. Introducing children to an easy and intelli-

gent use of reference books is one of the most important points in cultivating proper habits of study. Even the supplementary readers in history, geography, and nature study will be used more wisely after thoughtful and suggestive pointers by the teacher.

Even a small library of reference books may be made of great value to children, if they are taught to use them properly.

2. *Spelling.*

The problem of spelling should be attacked from several sides and systematically.

(*a*) Lists of new and difficult words should be carefully selected from the usual lessons in other studies and used for oral and written drills.

(*b*) In composition work of all kinds the dictionary should be used for doubtful words.

(*c*) The simple rules for spelling classes of words should be developed from full lists of examples.

Formation of the plurals of nouns.

Words ending in *f*, *l*, and *s*.

Monosyllables and words accented on the last syllable.

Words ending in *e*.

3. *Derivatives* of words used in reading, arithmetic, and other studies.

Common root words and their derivatives grouped; as, come, become, income, coming, comely; thought, thoughtful, thoughtless, bethought; see, seeing, unseen, foresee, seer, see-saw.

Notice prefixes and suffixes in forming derivatives.

4. *Composition.*

Instruction in outlining subjects.

Illustrate with new topics from general lessons and subjects of special interest, which are outlined before the class.

Criticise also in class outlines made by the children.

Base compositions on

(*a*) reference topics in geography and history;

(*b*) reports on the lives of authors whose works are studied in the reading lessons;

(*c*) debates in which arguments are presented on both sides;

(*d*) topics in which individuals show a strong interest; as in science, music, mechanics, etc.

5. *Letters* and *Correspondence* based upon

(*a*) descriptions of travel and historical scenes;

(*b*) visits to places of interest; as museums, parks, churches, public buildings;

(*c*) home letters to parents and others;

(*d*) business letters, telegrams, advertisements, etc.

6. Correction of prevailing incorrect speech. Avoid common absurdities and extravagances; as, *how* for *what*, *if* for *whether*, and the frequent use of *awful*, *dreadful*, *perfectly charming*, *immense*.

Discuss freely the use of slang. Like swearing, it shows over-emphasis and weak thought.

7. Use of abbreviations:—

C.O.D., D.D., Atty., N.B., via, vol., inst., Cr., viz.

Review earlier abbreviations.

Study list of abbreviations in the appendix of the dictionary.

8. Homonyms, synonyms, and antonyms. Make lists from the regular studies as they arise.

Use the dictionary freely in tracing up synonyms and antonyms.

9. Drill exercises in punctuation.

(*a*) Gather up the chief rules for punctuation.

(*b*) Copying from memory of songs, poems, hymns, and proverbs, with proper punctuation.

(*c*) Dictation exercises as tests of spelling, capitals, and markings.

SEVENTH GRADE

1. *Analysis of Sentences.*

The sentence as the unit of thought.

Chief elements of thought in the sentence.

Subject, predicate, and modifiers.

Many illustrations examined.

Adjective and adverbial modifiers.

Extension of adjectives and adverbs into phrases and clauses, modifying nouns or verbs.

The chief kinds of simple sentence.

The complex sentence and its elements.

The compound sentence and its parts.

Free use of the parts of speech without formal definition.

2. History of the English language in its chief

periods of development; the different sources of its words. Chief peoples who have contributed to it, with illustrations of their share in forming it; as, Celts, Anglo-Saxons, Danes, Normans, Latins.

Difference between English and Latin or German in the inflections.

3. Peculiarities of English spelling.

Spelling of Latin words; Greek words.

Silent letters in English.

Classes of peculiar spellings in English. Drills on special lists; as in *ei* and *ie*, and *ough*.

The reform of English spelling and reasons for it; as in *programme*, *thorough*, *through*.

4. *Compositions* based on

(*a*) lives of authors; as, Irving, Whittier, Lowell, Macaulay, Bryant, Scott, Hawthorne; the stories of the origin of important prose works and poems, as, "Hiawatha," "Evangeline," "Snow-Bound," the "Iliad" and the "Odyssey," "Siegfried, "King Arthur";

(*b*) topics on the history of English;

(*c*) general lessons discussed for the whole school;

(*d*) imaginative stories in imitation of stories read;

(*e*) side-lights on history and geography;

(*f*) special science reports.

5. *Spelling Reviews.*

Review and extension of the rules of spelling.

Review tables of homonyms.

Peculiar groups of English spellings.

Words derived from other studies and readings.

6. *Phonics.*

A careful drill in phonic sounds is needed in the grammar school: (*a*) single and concert drill on vowels, diphthongs, and consonants, with many illustrations; (*b*) drills on lists of words often mispronounced.

7. Use of larger dictionaries and reference books.

The unabridged dictionary should be employed for reference in grammar grades, including the appendix. The cyclopædias also of biography and of general reference should be made familiar by use. Children should learn how to cull important points from longer articles.

Supplementary reference books in science, geography, literature and history, biography and travel, should be used, discussed, and referred to by the teacher for supplementary and home reading. The language lessons should make children intelligent and interested in the use of reference materials. Much of this must be done also in the other studies.

8. Review of *common errors* in spoken English.

Discussion of classes of errors in earlier lessons.

Illustration of the various ways in which grammar aids correct speech; as in the use of irregular verbs, pronouns, adjectives, adverbs.

Common errors heard out of school discussed in class.

The meaning of vulgarisms and slang and their

origin. Reasonable discussion of slang and why it should be avoided. While some slang is expressive, the ordinary use of it shows weakness in thought and deficient power of expression.

9. Continue drill upon the pronunciation of lists of words commonly mispronounced; as, *apparatus*, *data*.

10. *Rhetorical Figures and Terms.*

Incidental attention to the rhetorical figures used by good writers; as, simile and metaphor.

Continuation of memory quotations.

EIGHTH GRADE

1. *Etymology.*

The parts of speech are familiar by name and use as explained in the discussion and illustration of the parts of the sentence, — subject, predicate, modifiers, and connective words.

(*a*) The eight parts of speech are now taken up as objects of study, illustrated, defined, and grouped in their chief classes.

The inflections and conjugations are also worked out in their chief forms.

Many of the lesser traditional classifications and inflections are of little value and should be omitted.

(*b*) The service of the chief classes, rules, and inflections for determining correct usage should be fully exploited in this fuller discussion of pronouns, verbs, and other parts of speech.

2. *Composition.*

A complete treatment of composition in the last year of the grammar school should make letter writing and written expression of thought in all subjects fluent and correct.

(*a*) Study of examples of the chief forms of composition by good writers; as, narration, description, and argument, illustrated by the writings of Scott, Hawthorne, Webster, Dickens, and others.

(*b*) Paraphrasing of poems and stories from memory.

(*c*) Review of earlier studies in outlining the chief unit of thought in an essay.

(*d*) Simplicity and clearness in writing.

(*e*) Figures of speech and their value as illustrated by good authors.

(*f*) The use of sources and reference books in preparing compositions.

(*g*) Errors to be avoided in composition, confusion of topics, ambiguity, stilted language, extravagance, foreign phrases.

(*h*) Original compositions upon self-chosen topics.

3. *Reviews and Summaries.*

(*a*) Study of synonyms and homonyms.

Review previous lists and add, such as: bail — bale; barren — baron; breach — breech; cannon — canon; canvas — canvass; cede — seed; chaste — chased; chord — cord; claws — clause; cousin — cozen; kill — kiln; maze — maize; martial — marshal; mean — mien.

Review the complete list of homonyms, with meanings and spellings.

(*b*) Irregular verbs.

Review the list of irregular verbs and the violations of correct usage.

(*c*) Pronouns and their use.

(*d*) Review rules for spelling and punctuation.

4. Study and analysis of English classics to discover the plan, outline of thought, choice of words, peculiar points of style, use of figures, and sentence construction.

5. Fuller study of the biographies of leading English and American writers and reports upon them. Acquaintance with the best books dealing with authors. The leading periods of American literature with their groups of authors.

MEMORY SELECTIONS FROM LITERATURE

In Volume I of the "Course of Study" a short discussion is given of the value of memory quotations from good authors.

This work should be regularly continued through the middle and grammar grades. The list of books which follows is an indication that there is abundant material from the highest sources from which the teacher may cull suitable poems and extracts.

The memorizing of favorite passages in the regular reading work is to be encouraged, but in addition to this, the daily opening exercises, anniversaries, and other special-day programmes should offer opportunity for the recital of select poems, stories, proverbs, and other short extracts, which embody the wisdom of the world in beautiful and forcible expression.

These exercises may be arranged in such a way as to reënforce the other studies of the school, as in the celebration of authors' birthdays, by patriotic poems and selections, by nature poems suited to the season, by poems of place in geography, and of important persons or events in history.

Every school should be supplied with half a dozen or more of such books as are named in the following series: —

INTERMEDIATE GRADES

The Children's Garland from the Best Poets (Coventry Patmore). The Macmillan Co.

Golden Treasury of Songs and Lyrics (Palgrave). First and Second Series. The Macmillan Co.

Open Sesame, Parts I and II. Ginn & Co. Short selections in both prose and verse.

Nature in Verse (Lovejoy). Silver, Burdett, & Co. Designed as a nature poetry reader for the lower grades.

Selections from Whittier's Child Life in Poetry and Prose. Houghton, Mifflin, & Co.

A Ballad Book (Bates). Sibley & Ducker. Ballads from Scotch and English folk-lore and history.

A Book of Famous Verse (Repplier). Houghton, Mifflin, & Co. A very choice collection.

The School Poetry Book (J. H. Penniman). Philadelphia.

Choice English Lyrics (Baldwin). Silver, Burdett, & Co.

Poetry for Children (Eliot). Houghton, Mifflin, & Co.

Nature Pictures by American Poets (Marble). The Macmillan Co.

GRAMMAR GRADES

Golden Treasury of Songs and Lyrics (Palgrave). First and Second Series in two volumes. The Macmillan Co.

Poems of American Patriotism (Matthews). Scribner's Sons.

Ballads and Lyrics (Lodge). Houghton, Mifflin, & Co.

Poetry of the Seasons (Lovejoy). Silver, Burdett, & Co.

Open Sesame (Bellamy and Goodwin), Parts I, II, and III. Ginn & Co.

Nature Pictures by American Poets (Marble). The Macmillan Co.

Poor Richard's Almanac (Franklin). Houghton, Mifflin, & Co.

Rules of Conduct (Washington.) Houghton, Mifflin, & Co.

The Jest Book, the Choicest Anecdotes and Sayings (Mark Lemon). The Macmillan Co.

Bacon's Essays and Colors of Good and Evil (Wright). The Macmillan Co.

Selections from the Bible. Psalms, Proverbs, and New Testament.

Selections from Epictetus. Ginn & Co.

A Book of Golden Thoughts (Atwell). The Macmillan Co.

BOOKS FOR TEACHERS

A Graded List of Poems and Stories (Gilbert and Harris). A list carefully selected and arranged for each of the eight grades of titles to poems and prose selections, stories, etc.

American Authors and Their Birthdays (Roe). Houghton, Mifflin, & Co.; Programmes and suggestions for teachers.

A New Library of Poetry and Song (William Cullen Bryant). A large book of nine hundred pages containing a library of the best poetry. Published by Fords, Howard, & Hulbert, New York.

History of American Literature (Higginson and Boynton). Houghton, Mifflin, & Co. An interesting book for readers.

Children's Stories of American Literature (Wright). Two small volumes. Scribner's Sons. Short biographies of American writers.

A Short History of England's Literature (Tappan). Houghton, Mifflin, & Co.

The Teaching of English (Chubb). The Macmillan Co.

The Teaching of English (Carpenter, Baker, and Scott). Longmans, Green, & Co.

HISTORY

A GENERAL introduction to the course in history is given in the first volume of the "Course of Study."

The fifth grade, in the following outline, continues the biographical stories of the fourth grade, and the list of books for both grades is given at the end of this chapter.

The outline of the remaining years is very simple, and is as follows: —

Sixth Grade. — The Colonial Period of the thirteen colonies, with some added topics of European history.

Seventh Grade. — The War of the Revolution and the Confederation to the adoption of the Constitution.

Eighth Grade. — History under the Constitution to the present time and topics from Europe.

This plan gives a continuous movement through the grades from the earliest period of American history to the present. It makes our national life in America the backbone of the course, while including the appropriate parts of European history.

In the selection of materials the plan concentrates upon a few main topics, and makes a very liberal use of biographies of representative men.

The correlation with literature and geography and

with European history is somewhat definitely indicated.

FIFTH GRADE

EUROPEAN EXPLORERS IN AMERICA

Columbus: His great purpose and its results.

The Cabots: A short story.

Magellan: First voyage around the world.

Cortés: The conquest of Mexico. Indians of Mexico.

De Soto: His wanderings in the Southern states.

Coronado: Explorations in the Southwest.

Drake: His buccaneering voyage against the Spaniards.

Western Stories

George Rogers Clark.

Lewis and Clark: Journey up the Missouri.

Frémont: Two expeditions among the Rocky Mountains.

To California in 1849 to the gold regions.

Powell's descent of the Colorado.

These stories deal with two groups of the greatest explorers on sea and land. They were men of great energy, high purpose, and unyielding determination. Their deeds are not always praiseworthy, but they are striking types of the men of their time, and in the main men of noble character.

HISTORY, EUROPEAN

Spanish and Portuguese Stories

Isabella of Spain.

Christians and Moors in Spain: Conquest of Granada. Irving's stories furnish some good material for the teacher.

Prince Henry and De Gama: Exploration of the coast of Africa. The efforts of the Portuguese to find an eastern route to India and the results should be compared with Columbus's and Spain's efforts toward the west.

English History

William the Conqueror: Conquest of England.

Richard I: His crusades. His knightly adventures.

John and the Great Charter.

Elizabeth: In connection with Raleigh and Drake. Story of the Armada.

There are several excellent books covering these topics, as The Story of the English, Child's History of England, etc.

Scotch History

William Wallace and Robert Bruce.

Tales of a Grandfather (Scott) and several other books give these famous stories in good form for schools, but somewhat difficult.

RELATED READING

Partly for regular school work and partly for home reading.

I. *American*

Hiawatha (Longfellow) — much used as a regular reader; American Explorers (Higginson) — much original material; Heroes of the Middle West (Catherwood); Discovery of the Old Northwest (Baldwin); Colonial Children (Hart) — source material; Source Book of American History (Hart) — excellent; American Historical Tales (Morris); Children's Life of Abraham Lincoln (Putnam). Children should be encouraged at school and home to read and enjoy this class of books.

II. *English and Scotch*

Tales of Chivalry (Rolfe); Tales from English History (Rolfe) — prose and verse. Heroic ballads, especially English and Scotch; Stories from English History (Church). Robin Hood (Pyle) — first-class stories; Tales from Scottish History (Rolfe); Story of the English (Guerber) — earlier parts.

STORIES OF OTHER EUROPEAN COUNTRIES

Reading and Literature

Lays of Ancient Rome (Macaulay); Jason's Quest (Lowell) — Story of the Golden Fleece; Ten Boys

on the Road from Long Ago — partly English stories; Stories from Herodotus — Crœsus, Cyrus, and others; Story of the Greeks (Guerber) — the earlier parts; Story of Roland (Baldwin) — age of Charlemagne; Ulysses among the Phæacians (Bryant) — simple poetic form; the Odyssey of Homer (Palmer) — poetic prose rendering; Book of Golden Deeds — many short stories.

Most of these are famous world-stories which are not only interesting to children, but of culture value as part of the race thought and experience. In the regular lessons in history and reading only a part of this historical and literary matter can be treated. But the leisure hours of children in school and at home cannot be better employed than in this reading, which expands the mind beyond the narrow range of school lessons. The geographical theatre of these stories should be clearly understood as a basis for clear knowledge.

Two years (fourth and fifth grades) are thus given to the pioneer period of American history, dealing with the life, difficulties, and surroundings of the explorers and very earliest settlers. Chronology is of but little importance, although a few leading dates can be fixed. The great thing is to produce a strong impression by complete, animated, and realistic portraiture of a leading character or events in which he figured. The pioneer period of American history lasted, however, from 1492 to 1850 or even later, and

one of our historians has called attention to the fact that the most marked and characteristic traits of American character have been found usually upon the frontier. As indicated in the course, parallel to these American stories runs a series of European history stories, somewhat similar in tone and general simplicity of life.

With these statements in mind, it will be possible to see the relation of this entire course of history study to the parallel course in geography.

The fourth, fifth, and sixth grade geography deals chiefly with the United States and North America, thus running parallel to much of the history of the same grades.

In the seventh grade the geography of Europe is mainly studied. It will be observed that the sixth-grade history has had much to do with Europe, both directly, as in the Persian and Punic wars, and indirectly in the relations of colonial settlement and development to European states, wars, etc. Besides this, the myths, history stories, and literature of European countries have been much used in the fourth and fifth grades, where the geographical locations of many of them have been fixed, as in the case of Ulysses in the Mediterranean, Siegfried on the Rhine, Horatius at Rome, Alfred in England, Isabella in Spain, and many others. This correlation of history and literature with geography should be thoroughly worked out.

SIXTH GRADE

HISTORY

European History

The Persian wars: Contact of Persia with Greece. Darius and Xerxes: Marathon and Platæa.

The battle of Salamis: The leading characters also.

The Punic wars: Rome against Carthage. Hannibal and Fabius. Regulus.

The Scipios: The courage and perseverance of the Romans.

Colonial History of America

Virginia: James I, Bacon, Washington. Development of representative government. Royal governors. Emphasis upon the English side of the history. The picture of colonial life among the Virginia cavaliers should be clear.

New York: Peter Stuyvesant and the Dutch rule. History of the colony under royal governors. The relations with the Indians and other neighbors.

Pennsylvania: William Penn, Benjamin Franklin. The Quakers and Germans and Scotch-Irish. The people and the governors. Plans for the larger union of the colonies.

Massachusetts: Settlement of Plymouth and Boston. Winthrop. Growth of the representative system. The Indian wars. Royal governors, charters, and popular assemblies. The religious controversies and persecutions.

The European Wars as Related to America

The last French and Indian War. Braddock's expedition. The last great struggle between the English and the French. Pitt in England. Montcalm and Wolfe. Pontiac's conspiracy. Condition of affairs at the close of the struggle. Character of French and English and their relations to the Indians.

Related Reading and Literature (American)

Miles Standish (Longfellow); Grandfather's Chair (Hawthorne); The Gentle Boy (Hawthorne); Giles Corey (Longfellow); Mabel Martin (Whittier); Snow-Bound, Among the Hills (Whittier); Tales of the White Hills (Hawthorne); The Sketch-Book (Irving); Source Book of American History (Hart); Biographical Stories (Hawthorne); Our Country in Prose and Verse; Pilgrims and Puritans (Moore); Conquest of the Old Northwest (Baldwin); The Building of the Ship (Longfellow); Autobiography of Franklin; Seven American Classics; The Conquest of Mexico (Prescott); Children's Stories of American Literature (Wright).

Readings from English Literature

The Coming of Arthur and the Passing of Arthur (Tennyson); Lay of the Last Minstrel (Scott); Choice English Lyrics; Child's History of England

(Dickens); Tales from Shakespeare (Lamb); Stories from Waverley (Scott); Stories from Old English Poetry (Richardson); Stories from English History (Church), 2 vols.; English Historical Tales (Morris); Source Book of English History (Kendall); History of England (Macaulay) — Introduction.

European Readings

Ten Great Events — partly English; Froissart (Lanier); William Tell (Schiller); Iliad (Bryant) — poetic translation; Don Quixote — a simple adaptation.

SEVENTH GRADE

THE REFORMATION IN GERMANY AND EUROPE

Leo X, Luther, Charles V, Henry VIII, Loyola, Gustavus Adolphus. Contest of Protestants and Catholics.

THE PURITAN REVOLUTION IN ENGLAND

Charles I and Parliament; Strafford. Hampden, Pym, Cromwell, Milton. William of Orange and the Protestant succession. Wesley and the Nonconformists.

LOUIS XIV AND THE FRENCH MONARCHY

French royalty and aristocracy. The tyranny of the upper classes over the poor. Lafayette, his early life and connection with America.

In the previous grades the character of the French has been studied in a much simpler form in Canada. Their customs, religion, and warlike qualities were seen in La Salle, Frontenac, Champlain, Marquette, the Jesuits, and others. The stories of Champlain, La Salle, and the French wars have dealt also with the schemes of the French government and with the French monarchs and statesmen.

AMERICAN HISTORY

Causes of the Revolution. Trace back the causes in the history of the colonies and of England. The life of Samuel Adams as a Puritan leader. Opening events of the war about Boston. The capture of New York and the battles near New York. Washington's retreat through New Jersey. Burgoyne's invasion and its results. Valley Forge and the sufferings of the army. Sea-fights — Paul Jones and others. War in the South — Charleston, Savannah. Cornwallis's campaigns and surrender at Yorktown. Life of Washington, Franklin, John Paul Jones, John Adams, Morris. The state of money matters at the close of the war. The growing hostility between the states. Congress and its power under the Articles of Confederation. The Philadelphia Convention: its struggles and leading men. The Constitution before the people; ratification. The life of James Madison in connection with the Constitution.

The great biographies should be very prominent,

as Life of Washington (Scudder) and Samuel Adams (Hosmer). Benjamin Franklin (More).

RELATED READING AND LITERATURE

Evangeline (Longfellow) — French life and earlier history; Poems of Emerson (Lexington, Boston, and other poems); Webster's Bunker Hill, and Adams and Jefferson — strongly historical; Grandmother's Story of Bunker Hill (Holmes); Camps and Firesides of the Revolution; Boys of '76 (Coffin) — good home reading, illustrated; American War Ballads and Lyrics — the earlier parts; Paul Revere's Ride (Longfellow); From Colony to Commonwealth (Moore); Life of Washington (Scudder) — the best for children; Source Book of American History (Hart) — Revolution and Confederation; Washington's Rules of Conduct, and other papers; Poor Richard's Almanac (Franklin); Speech on the Landing of the Pilgrims (Webster); Last of the Mohicans (Cooper); Stories of American Literature (Wright); biographies: Twelve Naval Captains (Sewell), first part; Washington and His Country (Fiske-Irving); Life of Samuel de Champlain (Sedgwick); Life of John Paul Jones (Hapgood); Life of Benjamin Franklin (More).

RELATED ENGLISH LITERATURE

Some of these books, like those in the previous list of American books, may be used in the regular reading work.

History of England (Macaulay) — the part on the Puritan revolution; Tom Brown's School Days (Hughes) — English school life; Christmas Carol (Dickens); Tales of a Grandfather (Scott) — Wallace and Bruce; Shakespeare's Tragedies (Lamb) — historical plays; Vicar of Wakefield (Goldsmith) — English life; Cotter's Saturday Night (Burns) — Scottish home life; Source Book of English History (Kendall); Story of the English (Guerber) — use the parts needed.

OTHER LITERATURE OF EUROPE

The Two Great Retreats (Grote) — retreat of the Ten Thousand; Merchant of Venice (Shakespeare) — Italy; Plutarch's Lives — Greek and Roman leaders; Life of Peter the Great (Motley) — interesting and clear; Natural History of Selborne (White); Stories from the Classic Literature of Many Nations (Palmer); Stories of the Alhambra (Irving) — Spain and the Moors; The Letters of Chesterfield to his Son; William Tell.

EIGHTH GRADE

EUROPEAN HISTORY

Julius Cæsar and Augustus. The Roman empire. The great period of Rome.

The French Revolution and Napoleon. Comparison with the American Revolution.

England's conquest of India. Clive and Hastings.

The English in Africa. Livingstone and Stanley. The struggle for Africa in recent years.

Revolt of the Spanish-American provinces.

The Greek war of independence. Turkey. Decay of Turkish power.

The union of the North German states. Bismarck and King William.

The union of Italian states. Cavour and Victor Emanuel.

Queen Victoria's reign. Bright, Gladstone. The English empire at present.

AMERICAN HISTORY UNDER THE CONSTITUTION

Hamilton and the finances; the banking system. Early division into parties; origin and growth of parties. Growth in territory, illustrated by simple maps. War of 1812; the right of impressment. Internal improvements; commercial routes westward. Immigration — its character and effects. Jackson and the spoils system. Inventions — their influence upon the progress of the country. Growth of slavery; the chief steps in its development. The Mexican War — its motives and results. Discovery of gold in California; continental railroads. The doctrine of state rights; Southern leaders. Plan of the Civil War; a few chief campaigns. Our system of revenue; the national debt. The three departments

of government; a system of checks. Civil service reform; review of the spoils system.

Biographies: Hamilton, John Quincy Adams, Daniel Webster, Lincoln, Horace Greeley, Whittier, Garrison, Whitney, Morse, Peter Cooper.

REGULAR READING LESSONS AND AMERICAN LITERATURE

Masterpieces of American Literature (Scudder); Nature Pictures by American Poets; Speech on Washington (Webster); Washington's Farewell Address; Tales of a Wayside Inn (Longfellow); Poems of American Patriotism; Hymns and Patriotic Songs; Fortune of the Republic and American Scholar (Emerson); Schurz's Abraham Lincoln, and other selected pieces; Lincoln's Inaugurals, and other speeches; My Hunt after the Captain (Holmes); Biglow Papers — selections (Lowell); Uncle Tom's Cabin (Stowe); Speech in Reply to Hayne, or, The Great Debate (Webster); Burke on Conciliation with the American Colonies; Oregon Trail (Parkman) — pictures of Western life; Source Book of American History (Hart) — latter part; The House of the Seven Gables (Hawthorne); Story of the Great Republic (Guerber) — latter part; American Writers of To-day (Vedder); The Pilot (Cooper); Twelve Naval Captains (Sewell); Great Words of Great Americans.

READINGS FROM ENGLISH LITERATURE

Masterpieces of English Literature: Sir Roger de Coverley (Addison) — English pictures; Lady of the Lake and Marmion (Scott); The Deserted Village and Traveller (Goldsmith); Ivanhoe, The Abbot, and Rob Roy (Scott); Essay on Samuel Johnson (Macaulay); Source Book of English History (Kendall); Tale of Two Cities (Dickens); Seven British Classics.

OTHER EUROPEAN LITERATURE

Julius Cæsar (Shakespeare) — closely related to the history; Peasant and Prince (Martineau); The Judgment of Socrates (Plato); Story of the Romans (Guerber) — latter parts; The Boy's Browning — Pied Piper and other poems; Plutarch's Lives — historical biographies; Don Quixote (Cervantes); Two Great Retreats — retreat of Napoleon from Moscow; The Talisman and Quentin Durward (Scott); Jean Valjean; Motley's Peter the Great and The Siege of Leyden.

LIST OF BOOKS

FOURTH AND FIFTH GRADES

1. Books of American pioneer stories and a few European stories which furnish material suitable for oral treatment by the teacher. A few books of select poems and sources will also be of service to teachers.

Pioneers on Land and Sea (McMurry). The Macmillan Co. This contains the stories of Hudson, Champlain, John Smith, Raleigh, early life of Washington, Columbus, Magellan, Cortés, and early New England.

Pioneers of the Mississippi Valley (McMurry). The Macmillan Co. This has the stories of La Salle, Joliet and Marquette, Hennepin, Boone, Robertson, Sevier, George Rogers Clark, Lincoln, and De Soto.

Pioneers of the Rocky Mountains and the West (McMurry). The Macmillan Co. The stories of Lewis and Clark, Frémont's two expeditions, Parkman among the Indians, the Sioux massacre, the trip to California in '49, and Powell's descent of the Colorado and Coronado's expedition.

The three books above named contain stories for use in both fourth and fifth grades. The order in which they are used depends upon the location of the home, in the East or West. It is recommended that

the ocean pioneers, Columbus, Magellan, etc., be taken in the latter part of the fifth grade.

Pilgrims and Puritans (Moore). Ginn & Co. The best account for our purpose of the early settlement of Plymouth and Boston. This reaches also into colonial history.

Heroes of the Middle West (Catherwood). Ginn & Co. Excellent stories of the early French explorers along the Lakes and the Mississippi.

The Discovery of the Old Northwest (Baldwin). American Book Co. Good stories of the French explorers.

The Conquest of the Old Northwest (Baldwin). American Book Co. Stories of the contest for the Ohio Valley and the Northwest.

A Book of American Explorers (Higginson). Longmans, Green, & Co. These are instructive stories of the early explorers and settlers in America, containing much source material.

Our Country in Poem and Prose (Persons). American Book Co. Excellent selections.

Samuel de Champlain (Sedgwick). Houghton, Mifflin, & Co. One hundred and twenty-six pages. A good, brief account of Champlain's life.

George Rogers Clark (Turner). Houghton, Mifflin, & Co. A lively narrative of Clark's exploits.

Lewis and Clark (Lighton). Houghton, Mifflin, & Co. The three above-mentioned books are good brief biographies of value and interest to teachers as

giving a fuller and more comprehensive treatment than the previous stories.

Source Book of American History (Hart). The Macmillan Co. The earlier parts on explorations and early settlement.

Children's Life of Abraham Lincoln (Putnam). A. C. McClurg & Co.

Stories from English History (Church). The Macmillan Co. Earlier and later tales of England.

History of England (Cooke). D. Appleton & Co.

England's Story (Tappan). Houghton, Mifflin, & Co. Instructive and well illustrated.

Four American Explorers (Kingsley). Werner School Book Co.

How our Grandfathers Lived. Source Reader (Hart). The Macmillan Co.

Old South Leaflets. Sources. D. C. Heath & Co.

American History Leaflets (Hart and Channing). Lovell.

Stories from the Bible (Church). The Macmillan Co. First Series. The early Bible stories in good form.

Source Book of English History (Kendall). The Macmillan Co. A few selections from the first part.

2. Books of simple, historical narrative which may be read by children in the fourth or fifth grade.

Stories of American Life and Adventure (Eggleston). American Book Co. Simple and interesting stories.

Stories of Colonial Children (Pratt). Educational Publishing Co. Very simple stories of early Massachusetts.

Colonial Life in New Hampshire (Fassett). Ginn & Co. An interesting description of early pioneer struggles.

Colonial Children (Hart). The Macmillan Co. Very simple source reader in early American history.

Pioneers of the Revolution. Public School Publishing Co. Simple stories of Boone and others.

Stories of the Badger State (Thwaites). American Book Co.

Stories of Maine (Swett). American Book Co.

A First Book in American History (Eggleston). American Book Co.

Wigwam Stories (Judd). Ginn & Co. Primitive Indian legends and customs.

American Indians (Starr). D. C. Heath & Co. One of the best books on Indian life.

Stories of our Country (Johonnot). American Book Co.

Children's Stories of American Progress (Wright). Scribner's Sons.

Four Great Americans (Baldwin). Werner School Book Co.

Stories of Ohio (Howells). American Book Co.

Stories of Georgia (Harris). American Book Co.

American Leaders and Heroes (Gordy). Scribner's Sons. Instructive, entertaining, and well illustrated.

Explorers and Travelers (Greely). Scribner's Sons.

The Young Puritans of Old Hadley (Smith). Roberts Bros.

Four True Stories of Life and Adventure (Smith). W. Beverly Harrison.

Hero Tales of American History (Roosevelt and Lodge). The Century Co.

A Primary History of the United States (McMaster). American Book Co. Illustrated.

Pacific History Stories. Tales of discovery of the Pacific slope. Ainsworth & Co.

First Steps in the History of Our Country (Mowry). Silver, Burdett, & Co.

The Boys of Greenway Court (Butterworth). D. Appleton & Co.

Short Stories from English History (Blaisdell). Ginn & Co. Easy narrative.

Stories of the Olden Time (Johonnot). American Book Co. Myths, legends, and historical tales. Somewhat difficult.

Fifty Famous Stories Retold (Baldwin). American Book Co.

The City of the Seven Hills (Harding). Silver, Burdett, & Co.

The Story of the Romans (Guerber). American Book Co. Somewhat difficult in language.

Stories of Old France (Pitman.) American Book Co.

Old Stories of the East (Baldwin). American Book Co.

Grandfather's Chair (Hawthorne). Houghton, Mifflin, & Co.; The Macmillan Co.

SIXTH GRADE

1. Text-books for children's use.

A special children's text-book on the colonial period has not been prepared, but a number of books deal somewhat fully with this period. A few of these are named, as follows: —

History of the United States (Fiske). Houghton, Mifflin, & Co. A text-book on American history. One hundred and eighty pages devoted to the period before the Revolution. The language may be somewhat difficult for children. This book may serve well as an outline, which can be filled in by teacher and children from other sources.

Several of the primary histories have simple, mostly biographical narratives of this early period, as a History of the United States (Gordy), Scribner's Sons; the New Era History, published by Eaton & Co.; Story of the Great Republic (Guerber), American Book Co.; Our Country's Story (Tappan), Houghton, Mifflin, & Co.; and a Short History of the United States (Scudder), Sheldon & Co. They are usually well illustrated with maps and quaint pictures.

A good book for use in connection with one of the above, used as a text, is Higginson's A Larger His-

tory of the United States of America to the Close of Jackson's Administration, Chapters I to VIII. Well illustrated.

Colonial Children (Hart). Source Readers in American History, No. 1. The Macmillan Co. Excellent. The very best select material for children.

The story of the Persian wars in Greece and of the Punic wars between Rome and Carthage are well told in a number of the histories for young people; for example: The Story of the Greeks (Guerber) and The Story of the Romans (Guerber), American Book Co.; The City of the Seven Hills (Harding), Scott, Foresman & Co.; History of Rome for Beginners (Shuckburgh), The Macmillan Co.; Greeks and Persians (Cox), Scribner's; Rome and Carthage (Smith), Scribner's.

2. Books of reference on colonial history for children.

Pilgrims and Puritans (Moore). Ginn & Co.

From Colony to Commonwealth (Moore). Ginn & Co.

Source Book of American History (Hart). The Macmillan Co. Chapters I to VIII. Well adapted for the use of children.

The Making of New England (Drake). Scribner's Sons.

The Making of Virginia and the Middle Colonies (Drake). Scribner's Sons.

The Making of the Great West (Drake). Scribner's

Sons. These three volumes supply good supplementary reading.

The Border Wars of New England (Drake). Scribner's Sons.

Life of George Washington (Scudder). Houghton, Mifflin, & Co. Chapters I to XII give the best account for children of Washington's life up to the Revolution.

Grandfather's Chair (Hawthorne). Houghton, Mifflin, & Co.; The Macmillan Co. The best stories of colonial life, in Hawthorne's interesting style.

Colonial Days in Old New York (Earle). Scribner's Sons. Fine description of Dutch life and customs.

Colonial Days and Ways (H. E. Smith). The Century Co.

The Gentle Boy and Other Tales (Hawthorne). Houghton, Mifflin, & Co.

Colonial Pioneers (Parton). Maynard, Merrill, & Co.

History of Plymouth Plantation (Bradford). Maynard, Merrill, & Co.

Colonial Massachusetts (Dawes). Silver, Burdett, & Co. Good stories. Well illustrated.

Roger Williams (Straus). The Century Co.

Child Life in Colonial Days (Earle). Illustrated. The Macmillan Co.

Stories of the Old Bay State (Brooks). American Book Co.

American History Stories (Dodge). Lee & Shepard.

Historic Boston (Hale). D. Appleton & Co.

The Autobiography of Franklin. The Macmillan Co., American Book Co., Houghton, Mifflin, & Co., Ginn & Co. Parts of this interesting narrative of colonial life can be selected by the teacher for reference reading or class use.

Benjamin Franklin (More). Houghton, Mifflin, & Co. A short, interesting biography of Franklin.

William Penn (Hodges). Houghton, Mifflin, & Co. This supplies some excellent descriptions of Penn's work.

Colonial Life in New Hampshire (Fassett). Ginn & Co.

American Indians (Starr). D. C. Heath & Co.

The Conquest of the Northwest (Baldwin). American Book Co. Clear and well narrated.

Historical Geography of the United States (MacCoun). A small book with good series of historical maps, notes, etc.

Biographical Stories (Hawthorne). Houghton, Mifflin, & Co.

The Courtship of Miles Standish (Longfellow). Houghton, Mifflin, & Co.

Westward Ho! (Kingsley). The Macmillan Co.

The Conquest of Mexico (Prescott). Maynard, Merrill, & Co. Abridged.

Ten Great Events in History (Johonnot). American Book Co.

Tales from Scottish History (Rolfe). American Book Co.

Tales from English History (Rolfe). American Book Co.

Ten Boys on the Road from Long Ago (Andrews). Ginn & Co.

SEVENTH GRADE

1. Books for careful reading and study by the children.

History of the United States (Fiske). Houghton, Mifflin, & Co. This furnishes merely a good outline to be filled in from fuller sources. Condensed and somewhat difficult. Any one of several other text-books will serve as well as Fiske's.

The War of Independence (Fiske). Houghton, Mifflin, & Co. A full and interesting account of the causes leading up to the war, and of the chief campaigns. This book can receive a careful study.

Washington and his Country (Fiske-Irving). Ginn & Co. This book furnishes excellent collateral reading and study of special topics. It is largely biographical, and interesting.

Benjamin Franklin (More). Houghton, Mifflin, & Co. Chapters V and VI. A brief account of Franklin in France.

Source Book of American History (Hart). The Macmillan Co. Chapters IX and X.

John Paul Jones (Hapgood). Houghton, Mifflin, & Co. A biography of the chief naval hero of the Revolution.

Camps and Firesides of the Revolution (Hart). The Macmillan Co. An excellent source reader. Simple.

American History told by Contemporaries (Hart). Vol. II. The best and simplest source material. This book should be in the school library for constant reference. Part also of Vol. III.

England's Story (Tappan). Houghton, Mifflin, & Co. This contains, for reference, a good brief account of the English Puritan revolution, as well as an outline history of England.

History of England (Macaulay). Maynard, Merrill, & Co. Chapter I. The part on the Puritan Revolution.

2. Further books of reference and supplementary reading for children.

The Men who made the Nation (Sparks). The Macmillan Co. First half of the book. Somewhat difficult in language.

Life of Washington (Scudder). Houghton, Mifflin, & Co. An excellent biography for children.

Burgoyne's Invasion (Drake). Lee & Shepard. An interesting monograph on this expedition.

Stories of Georgia (Harris). American Book Co.

Grandfather's Chair (Hawthorne). Houghton, Mifflin, & Co. Part III. Good stories in Hawthorne's fine style.

Poems of American Patriotism. Scribner's Sons. The earlier selections in the book.

Boys of '76 (Coffin). Harper Bros. Illustrated.

Heroes of the Revolution (Parton). Maynard, Merrill, & Co. An interesting pamphlet.

Side Lights on American History (Elson). The Macmillan Co. Vol. I. An excellent treatment of special topics.

Our Country in Poem and Prose (Persons). American Book Co. Patriotic and choice selections.

The Young American (Judson). Maynard, Merrill, & Co.

The Century Book of the American Revolution (Brooks). The Century Co.

Stories of Old France (Pitman). American Book Co. An introduction to French history.

Larger History (Higginson). Harper Bros. A complete and interesting history of the United States to 1837.

Alexander Hamilton (Conant). Houghton, Mifflin, & Co. A brief biography, simple and instructive.

Stories from English History (Church). The Macmillan Co. A standard book of children's history stories.

The Story of the English (Guerber). American Book Co.

Tales of a Grandfather (Scott). Ginn & Co. Stories of Wallace, Bruce, Douglas, etc.

Bunker Hill, Adams, and Jefferson (Webster). Houghton, Mifflin, & Co. Somewhat difficult, but worth the effort of serious study.

Source Book of English History (Kendall). The Macmillan Co. Excellent material.

An Historical Geography (MacCoun). Silver, Burdett, & Co.

EIGHTH GRADE

1. Books for children's study.

One good text-book of American history, such as History of the United States (Fiske). Houghton, Mifflin, & Co. This book is somewhat difficult in parts, and needs to be illustrated and enlarged from source material, history readers, biographies, and larger histories as follows: —

Formation of the Union (Hart). Longmans, Green, & Co. Chapters VII to XII. A clear treatment of topics up to 1829. This book is designed for older students, but in connection with other fuller materials may serve also for eighth-grade pupils.

Side Lights on American History (Elson). 2 Vols. The Macmillan Co. These two volumes furnish an excellent supplement to the text-book. A few important topics are handled with descriptive fulness, so as to furnish clear and interesting pictures. The second volume deals with the period of the Civil War and the later history.

Alexander Hamilton (Conant). Houghton, Mifflin, & Co. A good, brief account of Hamilton's part in making and launching the government.

Abraham Lincoln (Schurz). Houghton, Mifflin,

& Co. A brief, masterly essay on Lincoln's life and character.

Source Book of American History (Hart). The Macmillan Co.

Historical Geography of the United States (MacCoun). Silver, Burdett, & Co.

History of England for Beginners (Buckley). The Macmillan Co. The latter part.

The History of Colonization (Morris). 2 Vols. The Macmillan Co.

England's Story (Tappan). Houghton, Mifflin, & Co. The latter part of the book is a good, brief statement of English and European history in the last hundred years.

The Story of Cæsar (Clarke). American Book Co.

Stories from English History (Church). The Macmillan Co.

2. Children's supplementary books for reading and reference.

The Growth of the American Nation (Judson). The Macmillan Co. An interesting and vigorous treatment of leading topics.

American History told by Contemporaries (Hart). The Macmillan Co. Vols. III and IV. An excellent collection of source materials, well arranged for easy reference. Very valuable for school library.

Children's Stories of American Progress (Wright). Scribner's Sons. Very simple narratives on special topics.

Children's Life of Lincoln (Putnam). A. C. McClurg & Co. A simple story of Lincoln's life.

The Making of the Ohio Valley States (Drake). Scribner's Sons.

The Men who made the Nation (Sparks). The Macmillan Co. The second half of the book. It is chiefly biographical.

Old South Leaflets. D. C. Heath & Co. Several of these important papers belong to this period.

A Larger History of the United States of America to the close of Jackson's Administration (Higginson). Harper Bros.

Peter Cooper (Raymond). Houghton, Mifflin, & Co.

Poems of American Patriotism (Matthews). Scribner's Sons.

Words of Lincoln. Maynard, Merrill, & Co.

Twelve Naval Captains (Sewall). Scribner's Sons.

Yankee Ships and Yankee Sailors (Barnes). The Macmillan Co.

American History Studies (Caldwell). Ainsworth & Co.

Girls who became Famous (Bolton). T. Y. Crowell & Co.

Four American Inventors (Perry). Werner School Book Co.

The Gettysburg Speech (Lincoln). Houghton, Mifflin, & Co.

Boys of '61 (Coffin). Harper Bros.

Four American Naval Heroes (Beebe). Werner School Book Co.

My Hunt after the Captain (Holmes). Houghton, Mifflin, & Co.

Julius Cæsar (Liddell). Houghton, Mifflin, & Co.

Life of Nelson (Southey). Ginn & Co.; American Book Co.; The Macmillan Co.

The Great Debate (Hayne-Webster). Houghton, Mifflin, & Co. Somewhat difficult, but of great value.

The Two Great Retreats (Grote-Segur). Ginn & Co. Napoleon's retreat from Moscow.

History of Rome for Beginners (Shuckburgh). The Macmillan Co.

Explorers and Travelers (Greely). Scribner's Sons.

A still fuller list of books, especially for teachers, is given in the "Special Method in History."

GEOGRAPHY

THE following course of study in geography begins with the third grade, and gives special emphasis to home geography and excursions in the third and fourth grades (see Volume I of "Course of Study").

From the latter part of the fourth grade the series of important type studies is taken up and continued through all the grades.

A steady movement from the home outward into the great world is kept up to the end of the course.

Those topics which are usually named in geography courses in first and second grade really belong to nature study and elementary science, and will be found incorporated into the science course in another chapter of this book.

The whole plan and method of this course in geography is fully worked out and illustrated in the "Special Method in Geography."

The chief ideas discussed and illustrated in this course may be briefly stated as follows: —

1. Geography is a study of the earth as the home of man. Each important subject treated should contain a central idea illustrating this point of contact between man and the physical world.

2. Geography deals with man in his present

physical, social, and industrial environment. It occupies the broad practical ground of everyday life as it is.

3. Topics in pure science, such as biology, physiography, meteorology, and in history, are excluded from geography proper. Such topics, so far as they are germane to the common school work, belong to the course of study in natural science or history.

4. The general movement in geography is from the home neighborhood outward to the home state, the United States, North America, Europe, Africa, Asia, Australia, and South America.

5. The course of study should be so arranged that each succeeding year brings on a new set of important topics, not merely a rehash of old ones.

6. The topics fully treated in the earlier grades (3, 4, and 5) should be simple and crude, like bulky material things, while the later subjects grow more refined and complicated.

7. A few important topics for each grade should be carefully selected and elaborately treated.

8. These central topics in each grade should be well-chosen types, which form the basis for comparison, classification, and a constantly growing organization of geographical knowledge.

9. There are four chief stages in this course in geography: (1) Home geography. (2) Studies on North America. (3) Studies on Europe. (4) The

movement from Europe outward to the rest of the world.

10. The skilful oral treatment of geography topics in intermediate grades is essential to good instruction.

11. In the elaborate treatment of any type study, its causal and class relations to other things in geography, natural science, and history, in short, to its whole environment, should be carefully worked out.

12. The constant review and elaboration of previous lessons should be brought about by a detailed comparison of each new topic with similar topics studied in previous work.

13. Many important geographical ideas require a continuous treatment and enlargement through the successive years of the school course.

14. Such series of similar and connected topics, extending throughout the course of instruction, will gradually build up and organize the chief representative phases of geographical knowledge.

15. Nearly all the facts of formal geography, such as position, direction, names and location of places, countries, etc., can best be learned incidentally, as essential details of large and interesting topics.

16. Maps, pictures, diagrams, models, materials, products, excursions, and manual constructions should be freely used to give clearness and reality to geographical studies.

17. Children should be carefully trained in the use of text-books, maps, statistical tables, geo-

graphical readers, books of travel, and other books of reference.

FIFTH GRADE

SIMPLER TYPE STUDIES OF THE UNITED STATES

This includes topics of a pronounced physical character, the chief raw productions in agriculture, mining, and forestry, a few cities as trade centres, and the state government. The more complicated topics of manufacturing and commerce of the United States, and the more complete survey of the physiography of North America, can be reserved for the sixth grade. In each part of the United States the topics can be arranged in such order as best suits the movement from the home state outward.

1. Mount Washington and the White Mountains.

This region as a summer resort. Journey to the top. Views. The Presidential Range. The lakes and streams. Neighboring resorts and points of interest. Comparison with the Adirondacks.

2. Niagara Falls.

Lay of the land between Lake Erie and Lake Ontario. Map and description of the falls. Pictures. The gorge, rapids, and whirlpool. Recession of the falls. Obstruction of commerce by the falls. Canals. Use of the water-power.

3. The Alleghany Mountains.

Rivers that break through the mountains. Passes. Delaware, Susquehanna, Potomac, James. Scenery

of mountains, river cuts, railroads, etc. Forests, lumbering. Water-power. Mining. Chief mountain peaks. Mineral springs and resorts.

4. The Hoosac Tunnel.

Expense and difficulties of construction. The mountain chain of the Hoosac and Taconic ridges. Importance of the tunnel to Boston and Massachusetts. Later comparison with tunnels in the Alleghanies.

5. The oyster fisheries.

Oyster-farms in Long Island Sound and in the Chesapeake Bay. The process of growing and gathering oysters. Oyster boats and fishermen. Packing and shipping of oysters. Other oyster-beds along the Atlantic coast.

6. Location and description of a coal mine.

Sinking the shaft, difficulties and expense. The ventilation of a coal mine. Necessity for it. The dangers in mining, caving in, floods, explosions, fires. The coal-breaker, in the hard-coal regions. Machinery for hoisting, pumping, etc. Location and extent of coal fields in Pennsylvania. Other coal fields in the United States. Relation of coal production to manufacturing, commerce, and domestic use. Cities as centres of coal shipment and use, as Pittsburg, Chicago, Erie, Philadelphia, St. Louis, New York. Shipment by water and by rail.

7. The iron mines of Michigan.

Location and description of iron mines. Great ore

docks and loading of ships. Transportation to Chicago, Detroit, Cleveland, Buffalo, etc. Relation of iron mines to coal mines.

8. The blast-furnace.

Structure of the furnace. Coke, lime, and ore. Heating and smelting. Drawing of the molten metal, pig-iron. Uses of pig-iron in iron manufacture for railroad iron, stoves, and furnaces, wire-mills, bridges, guns, etc. Location of blast-furnaces at Pittsburg, Cleveland, Chicago, Birmingham, Buffalo, etc.

9. Pittsburg as a trade centre.

Advantages for iron manufacture. Neighboring manufacturing towns. Coke-ovens. Oil-refining and glass-making. Advantages of river for coal and iron shipment, etc. Railroad centre.

10. Lake Superior.

Location, area, and depth of the lake. Tributary rivers and the area drained. Scenery on the lake shores. Cliffs, woods, islands. Cities and harbors. Marquette, Duluth, etc. Commerce and shipping of the lake. Storms, fogs, and winter upon the lake. Dangers of navigation, season of navigation. Falls of St. Marys and locks. Steamers and whale-backs. Comparison of Lake Superior with other great lakes in size, depth, climate, commerce, cities.

11. Tobacco-raising in Virginia and Kentucky.

Steps in the cultivation of the crop. Soil and effects of tobacco culture on the soil. Louisville as a

centre for the tobacco trade. Tobacco production in other states and in Cuba. History of tobacco-raising in the United States.

12. Cotton plantations in the South.

Raising and picking of cotton. Negro labor. The cotton-gin, baling. History. Shipment of cotton by rail and by steamboat to New England and to Europe. Cotton-seed and cotton-seed oil. Locate the cotton belt by states. Cotton mills in the South.

13. Hard-wood forests of the Ohio Valley.

The original forests of this region. Labor of the pioneers in clearing the forests. Game. Hardships. Log houses. Bad roads. Present forests of Ohio, Indiana, Kentucky, West Virginia, and Tennessee. Lumber business, sawmills. Kinds of lumber. Effects of the destruction of the forests.

14. The pineries and lumbering on the upper Mississippi.

Logging camp in winter. Uses of the snow. Skidding, and log piles on the banks of streams. Melting snows and rafting in the springtime. Sawmills and planing-mills. Forest fires and great losses. Forest belt from Maine to Minnesota. Series of great lumber ports, Minneapolis, Chicago, Detroit, Buffalo, Albany, Bangor, St. John, etc.

15. Minneapolis as a trade centre.

Advantages of position and water-power. A centre for the lumber business. Mills. Railroad to the

prairie regions westward. Wheat fields of the Northwest. Red River Valley. Flour mills of Minneapolis. Shipment of flour. Minneapolis and St. Paul compared with Pittsburg and Allegheny. Other lumber and flour centres of the upper Mississippi. Places of special interest about Minneapolis.

16. Stock-raising in the corn-producing states.

Pasturing of cattle. Winter feeding. Shipment to the packing centres. Kansas City, Chicago, Omaha, Peoria.

17. Trip down the Mississippi River from St. Paul to the delta.

Bluffs on the upper river. Lake Pepin. Cities. St. Louis and the great bridge. Broad flood plain below Cairo. River-windings. Levees. Floods, crevasse, damage. Steamboats, pilots, changing channels. Cities of Memphis, Vicksburg, New Orleans. Description of the jetties at the mouth of the Mississippi. Recent geological history of the valley. Commerce of the Mississippi River and its tributaries. Ohio and Missouri rivers compared with one another and with the upper Mississippi.

18. The government of the home state.

State capitol. Governor's residence. State legislature. Rooms for meeting of Senate and House. Illustrations of state laws. State appropriations for schools and charitable institutions. Duties of the governor, illustrated. The state Supreme Court and its duties.

19. Pikes Peak and vicinity.

Manitou and the mineral springs at the base. Trip to the summit house by trail or by railroad. Broad view from the summit. Clouds, rain, snow, and storms on the top. Places of interest in the neighborhood, as Cheyenne Canyon, Garden of the Gods, Monument Park, Williams Canyon, Cave of the Winds. Other great peaks in Colorado, as Grays Peak, Longs Peak, Mount of the Holy Cross, etc. Compare with Mount Washington and White Mountains.

20. Irrigation and the big ditch at Denver.

The arid country east of the foothills. The Platte River and location of the big ditch. Construction of the ditch, tunnels, flumes, etc. Reservoirs for receiving spring floods. Drawing off the water upon the land. Water rights and taxes. State laws. Effects of irrigation. Farms, gardens. Other modes of irrigation. Importance of irrigation to Colorado and the West.

21. Gold-mining in California.

Discovery of gold in California. History. Placer-mining. Going down into a gold mine. Machinery. Stamp-mills and smelters. Gold production in Colorado and other Western states. The uses of gold at the mint and in manufacturing. Later comparisons with the Klondike, Australia, and South Africa.

22. The central basin.

General survey and drainage of this region. Salt Lake. Rivers flowing into it. Geologic history of

the lake. Salt deserts to the west. Other salt lakes and sinks in the great basin. Causes of the dry climate. Vegetation of the basin. The surrounding mountains.

23. Fruit-growing in California and Florida.

Orange groves. Pineapples, peaches, etc. Dangers from frosts and means of protection. Shipment to Northern and Eastern markets. Comparison with other fruit-growing districts of the United States. The winter resorts in these states.

24. Columbia River and the salmon fisheries.

The salmon going up the river. Catching and canning the fish. Mouth of the Columbia. Navigation. The falls, dalles, and upper course of the river.

25. The forests of Washington and the Pacific slope.

Lumbering among the big trees. Climatic conditions favorable to forests. Shipment of lumber. Comparison with lumbering in other parts of the United States.

26. Sugar-production in Louisiana.

Sugar-cane and the cane-fields. Sugar-mill and boiling down the sap. Refining sugar and shipment. Compare with maple-sugar making. Later comparison with Cuba and Hawaii in regard to sugar product. Beet-sugar-production in California, Colorado, and other states. Compare with cane-sugar process and production.

GEOGRAPHY TOPICS PARALLEL WITH THE HISTORY LESSONS OF THE FIFTH GRADE

Journeys across the Rocky Mountains (stories of Frémont and Lewis and Clark). The canyon of the Colorado River (story of Major Powell). The plateau of Colorado. The land of Mexico (story of Cortés). Florida and the Southern states (De Soto and La Salle). The West Indies (Columbus's different voyages). The trade routes to India (Columbus and De Gama). The map of the world in Columbus's day. The equatorial current, trade-winds, and Gulf Stream (voyages of early navigators).

As pure geography lessons parallel with the history these topics can be treated briefly, but in a comprehensive way, so as to establish a valuable connection between history and geography.

GEOGRAPHY TOPICS FOR SHORT REVIEW AS SUGGESTED BY THE STORIES OF EUROPEAN HISTORY

Spain in the time of Columbus (Granada and the Moors). The coast of Africa and the Indian Ocean (Prince Henry and the Portuguese navigators). The journey to Palestine (Richard I and the Crusades). Normandy and England (William I). Sailing around England (Spanish Armada). Scenery of the mountains and rocky coasts of Scotland (Wallace and Bruce).

A review of these historical topics from a purely

geographical standpoint is worthy of special emphasis.

SIXTH GRADE

The sixth grade completes the geography of the United States and North America. The more complex and difficult topics of the United States are given a full treatment. The large physiographic aspects of North America, our neighbors in Canada and Mexico, our colonial possessions, and the still broader topics of mathematical geography for the world, are included in this year's work.

1. Boston (historical associations, commerce).

Monuments. History. Famous streets and buildings. Harbor and shipping. Import of raw products. Manufactures, shoes, books, clothing, etc. Coast trade and ship lines to Europe. Railroads to the West and North. Harvard University. Comparison with Baltimore, in commerce, population, Johns Hopkins University. Coast trade. Railroads.

2. New York City.

Commerce with the West via Hudson River, New York Central, Erie Canal, and Great Lakes. Other Western roads terminating in New York. The harbor and shipping docks of New York. The coastwise trade. Steamship lines to Europe and South America. Exports and imports compared with other cities of the United States, reasons for vast amount. Immigration, Castle Garden, emigrant ships. Various languages spoken in New York. Jewish quarter.

Great bridges, ferries, parks, libraries, beaches. Greater New York and the suburban cities. Columbia University and other schools. The subway and elevated railways. Comparison in detail with Philadelphia. Later comparison with New Orleans, Chicago, and San Francisco.

3. Great traffic routes across the Alleghany Mountains.

The Baltimore and Ohio Railroad, the Pennsylvania lines, the New York Central, tunnels through the mountains, scenery. Use of the river valleys and water gaps. The Great Valley of Virginia, history. Early difficulties in crossing the mountains. Later comparison with Rocky Mountain roads.

4. Development of the Southern states.

The pine forests of the South, turpentining and lumbering. Iron production and coal mines. Birmingham. Truck farming along the Atlantic states from North Carolina to Florida. Cotton mills and factories. Fruit culture in the Gulf states. Oil fields, cotton production, and cattle ranches of Texas. Galveston and its trade. The negro population and labor. The schools at Hampton and Muskegee. The public schools and universities of the South. Immigration into the Southern states.

5. The manufacture of steel and wrought iron.

Their uses in machine shops, in the manufacture of guns and firearms, cutlery, nails and wire, tools and implements, in bridges, shipbuilding, and

house construction. The importance of iron industries and their close relation to all other industries in our modern age should be understood.

6. Cotton manufacture in New England.

Mills at Lowell and Fall River and other cities. Use of water-power and steam. The spinning-jenny and the power-loom. Mill operatives, and their homes and mode of life. Cotton mills in the South and in other states. Woollen-mills and woollen manufacture. Study a map which marks the distribution of textile industries in the United States.

7. A great newspaper plant.

Gathering the news. Reporters. Press reports. Paper used. Typesetters and printing presses. Extent of circulation. Various kinds of news from home and abroad.

Printing and manufacture of books. Large libraries in cities and schools. Chief centres of publication, Boston, New York, Chicago, etc.

8. Boot and shoe manufacture.

Hides, tanneries, and leather manufacture. Sources from which hides and leather are obtained. A shoe factory, machines and division of labor. Boston as a centre for the shoe trade. Other cities.

9. Shipbuilding.

Wooden and iron ships. Iron shipbuilding in Philadelphia. The government navy yards. Dry docks, launching a ship. The American navy, vessels of war. Lines of merchant steamers to Europe.

10. Washington as the seat of government.

General plan of the city. History of founding. The capitol building, halls of Senate and House. Congress and its lawmaking powers. The Supreme Court and its duties and powers. Comparison of state and national government. Monuments and parks and public buildings in Washington, as the Congressional Library, Smithsonian Institute, White House, Treasury Building, and Department of State. Relation between the three departments of government.

11. Chicago as a trade centre.

Advantage of location. Relation to the West. Original site. Swamps and Chicago River. Products centring here, grain, livestock, lumber, coal, iron, copper, etc.; packing houses. Railroads centring in Chicago. Shipping by the lake and by canal. Waterworks, drainage canal. Park system. History of Chicago, great fire, exposition. Compare later with other cities in size, etc.

12. Central Pacific Railroad route from New York to San Francisco.

Difficulties of construction. Mountain engineering. Tunnels and snow-sheds. Old wagon roads and trails to California. Products shipped between the East and the West. Fruits, metals, manufactures, tea, sugar, etc. Comparisons with Southern Pacific and Northern Pacific. Compare with Pennsylvania system in the East. The railroads of the United States as a whole.

13. The Mississippi Valley as a whole.

Area and population. Variety of climate and products. Great producing districts, as corn belt, wheat, cotton, iron, coal, cattle-raising, forests. Contrast of the Ohio and Missouri rivers. Commerce of river compared with that of railroads. Commerce of Mississippi River compared with that of the Great Lakes.

14. New Orleans.

Centre for the cotton trade. Commerce by river boats and ocean steamers. The levees, wharves, and river front. Products shipped, sugar, fruits, cotton, lumber, grain. Population, French, English, negroes. History. Railroad centre for the South. Comparison with Galveston and Gulf ports. Trade with Central and South America and with Europe. Value of the jetties at the delta.

15. The Rocky Mountains as a whole, including all the Western highlands of North America.

Chief ranges and plateaus. Parks. Effects of the mountains on climate, rains, and production. Mineral and agricultural resources. Grazing and forests. Drainage, rivers, gorges and canyons, lakes. Volcanic regions, glaciers, deserts. Plateau of Mexico and volcanoes.

16. Trip from Puget Sound to Alaska.

Islands and coast scenery. Climate of the coast. The Japan Current. The people and industries of Alaska. The seal fisheries. Climate of Alaska and the North.

17. San Francisco.

Harbor and advantages for trade. Commerce of the Pacific coast and with Asia. Steamship lines to China and Japan. Exports and imports at San Francisco. Chinese immigration. Chinese quarter. Commerce with Hawaii and the Philippines. San Francisco compared with cities of Puget Sound and other Pacific ports. San Francisco compared with New York, Boston, Baltimore.

18. The Isthmian Canal.

The French attempt to build the canal. The Nicaragua route, length and difficulties. Present plans of our government at Panama. Advantages of an isthmian canal. Shortening of great trade routes by water. Comparison with Suez Canal.

19. North America as a whole.

Its great central plains and mountain systems. Its Atlantic and Pacific coastal plains. Contrast of the Gulf coast with the Arctic coast. The chief zones of climate, variations in heat and moisture due to physical causes. Isothermal lines. Peninsulas, bays, and harbors of North America. Comparison of Atlantic and Pacific coasts.

20. Distribution of races in North America.

European races in North America. The Indians in Canada, United States, and Mexico. The Negroes, their numbers and location. The Chinese and Japanese. European races in the United States. Density of population in different parts of North America. Comparison and contrasts of these races.

21. The glacial period in North America.

Description of the great ice sheet. Extent and limits of the ice sheet. Its deposits and effects on soil, lakes, rivers, etc. Proofs of the ice age upon the rocks. Present glaciers in Greenland and Rocky Mountains.

22. Mathematical geography.

Motions of the earth on its axis and around the sun. The inclination of the earth's axis to the plane of its orbit. Causes of the changing seasons and the changing length of the day and night. Long days in summer and long nights in winter above the Arctic circle. The equinoxes. Latitude and longitude; parallels and meridians and their meaning interpreted upon maps; equator and prime meridian. Comparison of parallels of latitude with isothermal lines. The zones. The moon and its changes, effects upon the tides, importance of tides in harbors and to navigation. Stars and constellations of the Northern Hemisphere, apparent motion.

23. Colonial topics.

The Hawaiian Islands, products, climate, people, and government. The Philippines. History. Surface and climatic conditions. Products and commercial importance. The people, native Filipinos, Spaniards. The government of the Philippines, education. The United States and trade with the Philippines. Porto Rico and Cuba. History.

24. Our neighbors in North America.

The government of Canada. Ottawa the capital city, parliament, states. Comparison with government of the United States. Trade relations with the United States. The St. Lawrence River, commerce, rapids, cities. Contrast with the lower Mississippi and Colorado rivers.

25. Mexico. Its people and government.

The Mexican population, Indian races. History, conquest by Spaniards, independence. Backward condition of agriculture, manufacturing, and education. Ignorance and half-enslaved condition of the poorer classes. Comparison with people of United States. The states of Central America.

26. Topics suggested by American history.

The St. Lawrence Valley and the French wars. The Ohio Valley and its approaches from the east. Geographical location and distribution of Indian tribes in our early history. The influence of the Alleghany Mountains upon early settlement. The geographical distribution of different nationalities coming to this country in colonial times.

27. Geography suggested by European history.

Location of European countries which sent emigrants to America. Compare the latitude of their old home with their situation in America. The old home of the negro race in Africa. The Mediterranean Sea and its surrounding nations (suggested by the Persian and Punic wars). New England and Canada (suggested by the colonial and border wars).

SEVENTH GRADE

THE PHYSIOGRAPHY OF EUROPE

1. The Central Alps. Sources of rivers. Glaciers of the Rhone valley. Lake Geneva and the other lakes of Switzerland. Summer resorts and tourists. Effects of the glacial period in Europe and comparison with America. The lesser mountains and peninsulas of Europe and the division into separate nations. The surrounding waters and irregular coast line of Europe. Effects in history. 2. Physical character and surroundings of the British Isles. Effects of isolation. 3. Voyage by steamer from New York to London. South coast of England, the Thames, Liverpool, and the trade with America. 4. The coal fields of England and Scotland. Importance of coal. Compare with United States. 5. Iron manufactures (Birmingham and Sheffield). Compare with Pittsburg, Birmingham, Chicago. 6. The textile industries (Manchester). Compare with New England cotton and woollen mills. The Manchester ship canal. 7. London. Parliament houses, government, king and aristocracy. Compare with Washington. British Museum. Westminster Abbey. St. Paul's. The docks and shipping. The Tower. History. 8. Oxford and Cambridge universities. Great public schools, school life. 9. The surface of Scotland, lakes, coast, mountains. 10. Glasgow and shipbuilding. 11. Edinburgh and the castle. History.

12. Ireland's agriculture and manufactures. The Irish people, the Irish in America. 13. Important fisheries about the British Isles. Compare with the Banks of Newfoundland and New England coast, Chesapeake Bay, and Florida coast.

France

14. Paris the city of modern art, palaces, architecture, churches, art galleries, theatres. 15. The manufacture of silk. Lyons. 16. Grape culture and French wines. Bordeaux. 17. Marseilles, the chief port, trade with Mediterranean ports. 18. The French people, gayety, fashion, fine china, and artistic manufactures. The French Republic. Recent history.

Germany

19. The Rhine River, fortified cities. Steamboat trip up the Rhine, commerce and cities of the Rhine. History. Compare with the Hudson. 20. Iron manufactures on the lower Rhine. 21. Sugar-beet industry. History. 22. Berlin the Kaiser City, the kaiser, the army, royal residence, museums. Potsdam railroad centre. Compare with Chicago. 23. Character of the German people, music, outdoor life, physical training. Common schools and higher education. Beer-gardens and amusements. Home life. 24. Internal commerce by rivers and canals. 25. Hamburg, the chief seaport, the harbor. Other cities of the Baltic.

Holland and the Lowlands

26. Lowlands and Dikes. Character of the Dutch people. Amsterdam and Rotterdam, Dutch colonies. Compare with St. Petersburg and Venice.

The Austrian Empire

27. Mixed nationality. Hungary. Vienna the capital city. Its position on traffic routes.

Switzerland

28. Swiss manufacturing and grazing. Dairy products. Government of Switzerland. History. Compare with our union of states.

Norway, Sweden, and Russia

29. Surface and products. Fiords of the west coast. North Cape. Cities. Emigration to America.

30. The government of Russia. Contrast with the United States and England. St. Petersburg and the commerce of the Baltic (Peter the Great).

31. The ancient city of Moscow. The Kremlin.

32. The Volga and the great plain of Russia. Compare with Mississippi Valley. Odessa.

The Peninsulas of Southern Europe

33. Madrid and the Spanish people. 34. Granada and the Alhambra (Irving). 35. Italy and the Italian people. Fine art and beggars. Naples and Mount Vesuvius (Pompeii). 36. Rome, St. Peter's

and the Vatican, the Head of the Roman Church. The Colosseum and the ruins of Rome (historical associations). 37. Athens and the Acropolis. The modern city (independence from the Turks). 38. Constantinople. Bad government of the Turk. Decline of Turkey.

39. Great traffic routes of Europe by railroad, by internal waterways, and by sea travel.

Location of chief cities with reasons for the same. Contrast with American cities.

40. Number of important nationalities in Europe. Contrast with North America.

41. Comparison of Europe with North America as to mountains, rivers, cities, climate.

Topics suggested by American History

Geographical centres of the Revolutionary War in America (Hudson River and Lake Champlain, Boston and vicinity, New York and New Jersey, Virginia and the Carolinas). Important naval battles on the ocean. Franklin and Paul Jones in Paris. France, England, Holland, and Germany during the Revolution.

European History and Geography

Geographical division of Europe into Protestants and Catholics. The empire of Charles V in Spain, Holland, Austria, and the colonies.

EIGHTH GRADE

STUDY OF THE REST OF THE WORLD, STARTING FROM EUROPE AS A CENTRE OF INFLUENCE

1. The British Empire. Colonial possessions and their distribution. 2. India, physical features, climate, and people. England's government of India. History. Routes to India from England, by Cape of Good Hope, by Suez Canal, by overland railway. 3. Australia and its rapid development. Gold mines. Sheep farms. Cities. Trade with England. Union of states. Compare with Canada and the United States. 4. The English in Africa. Cape Colony. The Boer War. Egypt. Livingstone and Stanley. Possessions of other European states in Africa. Rivalry of France and England in Africa. 5. The Congo Free State. Congo River (Stanley). 6. New Zealand and the English possessions in the Pacific. 7. Other lesser colonies of England. 8. General relations of England to all her colonies. Commerce of England. Naval power of England, war ships, and naval stations.

9. Dutch possessions in the East Indies.

Java and the successful Dutch rule.

10. Russia in Asia.

Russian exiles. The Trans-Siberian Railway. Rivalry of Russia and England in Asia. The Black and Caspian seas. Commerce. Cities. 11. The great physical features of Asia, mountains, plains,

and climatic conditions. 12. Vast deserts of Central Asia. Compare with deserts of Northern Africa.

13. The Chinese Empire. Its weakness. The Boxer troubles and European interference. 14. The Yangtse River, primitive boating on this river. Compare with Mississippi River. 15. Chinese cities, Pekin, Canton, etc. Commerce with United States and with Europe. 16. Tea culture in China. 17. Character of the Chinese people, slow and conservative, opposition to modern ideas and improvements, ancestor worship. Skill in hand work. Manufactures. Education and power of old customs.

18. The Island Empire of Japan.

Comparison with the British Isles. Progressive character of the Japanese. Their artistic manufactures. Education. Army. Navy. Recent history.

19. Smaller states of Asia. The Open Door of Asia. 20. The physiography of Asia compared with that of Europe and North America. 21. Large islands of the East Indies and the West Indies and Madagascar compared. 22. Distribution of races in Asia. Compare with Europe in population and government.

23. South America.

The Andes Mountains. Compare with North America. 24. The Amazon River. Compare with Congo and Mississippi. 25. Brazil and its people. Coffee production. Rio Janeiro and other cities. 26. Other important states of South America. 27. The

Pacific Ocean, size and character as compared with the Atlantic and Indian.

28. Comparative physiography of the continents.

29. Location and distribution of races upon the earth. 30. The controlling influence of Europe and North America.

TOPICS SUGGESTED BY AMERICAN HISTORY

31. The expansion of the United States. Results of the Spanish War. 32. The negro in Africa and in America. 33. Distribution of English-speaking people throughout the world.

34. European history.

Napoleon's conquests in Europe. 35. The union of German states. 36. The union of Italian states. 37. England's conquests in the last century.

FIFTH GRADE

1. Text-books for the use of teachers and pupils.

North America, Second Book (Tarr and McMurry). The Macmillan Co. This contains a full treatment of leading topics of North America and especially of the United States.

Type Studies from the Geography of the United States (McMurry). The Macmillan Co. This contains a full presentation of the simpler types of the United States as supplementary to the text-book.

Type Studies of North America. The larger and

more comprehensive type studies of the United States and North America.

Other standard geographies.

Teacher's Manual (McMurry). A guide to teachers in the use of the Tarr and McMurry Geographies. The Macmillan Co.

The State Geographies. New England, New York, Ohio, and other states. Much fuller treatment of special topics. The Macmillan Co.

2. Supplementary and reference books for children.

Around the World, Third Book (Carroll). The Morse Co. Excellent reading for this grade.

Picturesque Geographical Readers. Books Second, Third, Fourth, and Fifth. Lee & Shepard.

The Information Readers. 4 vols. Boston School Supply Co. Descriptive of industries, etc.

Our Own Country. Silver, Burdett, & Co.

Stories of Industry. 2 vols. Educational Publishing Co. These treat mining, textile industries, manufacture of iron, etc.

Selections from the Youth's Companion. Numbers 10 to 17. Perry Mason & Co.

Railway guides and illustrated pamphlets as follows: Wonderland, 1900, Wonderland, 1901 (Northern Pacific Railway). Colorado via the Burlington route. Grand Canyon of Arizona (Santa Fé Railroad). California for Health, Pleasure, and Profit (Southern Pacific). Around the Circle (the Denver and Rio Grande). What to see in Colorado (Colorado

Midland). Los Angeles City and County, Souvenir and Views (the Union Pacific). Through Story Land to Sunset Seas (Southern Pacific).

Our Country, East. Perry Mason & Co.

Our Country, West. Perry Mason & Co.

World and its People (Smith). Silver, Burdett, & Co.

SIXTH GRADE

1. Text-books for teachers and pupils.

North America, Second Book (Tarr and McMurry). Full study of physiography, products, manufactures, cities, etc., of the United States and North America. This is a continuation of fifth-grade work.

Type Studies of the United States (McMurry). The Macmillan Co. The Studies of North America. These are full accounts of the larger, more complex topics of North America. The Macmillan Co.

Other standard geographies.

The State Geographies, by different authors. The Macmillan Co. New England, New York, Ohio, and other states. Very interesting reference material and well illustrated.

2. Supplementary reading and references for children.

North America (Carpenter). American Book Co. Valuable and interesting descriptions.

King's Geographical Readers. 6 vols. Lee & Shepard. Well illustrated and suited for school use.

Our American Neighbors. Silver, Burdett, & Co. Descriptions of Canada and Mexico.

Great American Industries. 2 vols. A. Flanagan & Co. Illustrated descriptions of chief industries.

Whaling and Fishing (Nordhoff). Dodd, Mead, & Co. A realistic description of ocean and sailor life.

Alice's Visit to the Hawaiian Islands (Krout). American Book Co. 208 pp. Simple descriptions and pictures based on observation.

Selections from the Youth's Companion. Numbers 3, 10, 11, and 12. Perry Mason & Co.

Boy Travellers (Knox). The volume on Mexico. Harper Bros.

Stories of Industry. 2 vols. Educational Publishing Co.

A Trip across the Continent (Lummis). Scribner's Sons.

A Reader of Physical Geography (Dodge). Longmans, Green, & Co.

Historic Boston (Hale). D. Appleton & Co.

General Guide to the United States and Canada. 2 vols. D. Appleton & Co.

Arctic Alaska and Siberia, or Eight Months with the Arctic Whalemen (Aldrich). Rand, McNally, & Co.

Greater America. Perry Mason & Co. A study of our recent possessions.

Hawaii and its People (Twombly). Silver, Burdett, & Co.

Winter in Central America and Mexico (Sanborn). Lee & Shepard.

Captains of Industry (Parton). Houghton, Mifflin, & Co.

SEVENTH GRADE

1. Text-books for pupils and teachers.

Tarr and McMurry Geography, Third Book. Europe and the Other Continents. The chief topics are selected for extended treatment.

Other standard geographies.

2. Readings and references for children.

Type Studies on the Geography of Europe (McMurry). The Macmillan Co. (In press.)

Northern Europe. 122 pp. Ginn & Co. Illustrated. Easy reading matter, adapted also to younger pupils.

Europe (Carpenter). American Book Co. 452 pp. Valuable and interesting.

Boyhood in Norway (Boynton). Scribner's Sons.

Modern Europe (Badlam). Silver, Burdett, & Co.

Man-of-war Life (Nordhoff). Dodd, Mead, & Co.

Under Sunny Skies. Ginn & Co.

Sketches from the Youth's Companion. Number 2. Glimpses of Europe. Perry Mason & Co.

Personally Conducted (Stockton). Scribner's Sons.

King's Geographical Readers, Sixth Book. Northern Europe. Lee & Shepard.

Holland and the Hollanders (Meldrum). Dodd, Mead, & Co. 405 pp. Well illustrated.

Footprints of Travel (Ballou). Ginn & Co. 472 pp. Partly devoted to Europe.

Madam How and Lady Why (Kingsley). The Macmillan Co. Instructive reading.

Geography of the British Isles (Geikie). The Macmillan Co. 127 pp.

Europe (E. A. Freeman). The Macmillan Co.

The Merchant Vessel (Nordhoff). Dodd, Mead, & Co.

A Geographical Reader (Rupert). Sibley & Ducker.

Story of a Grain of Wheat (W. C. Edgar). D. Appleton & Co. An excellent study of wheat regions.

Stoddard's Lectures. Vols. I, V, VI, and IX. Balch Bros. Co. Large books suitable for reference library.

Sea and Land (Shaler). Good reference book for pupils and teachers.

Boy Travellers (Knox). Large volumes, well illustrated. Harper Bros. Europe, Great Britain, and Russia.

Men of Invention and Industry (Smiles). Harper Bros.

EIGHTH GRADE

1. Text-books for use of teachers and pupils.

Tarr and McMurry's Geographies. Third Book, on Europe and the rest of the world. The Macmillan Co. The full treatment of Asia, Africa, and South

America, and of the large topics of physiography. The comparisons of these later topics with those previously studied in Europe and North America will bring a complete review of the whole of geography.

Other standard geographies.

2. Supplementary readings for pupils.

Asia (Carpenter). American Book Co. A very interesting and instructive geographical reader.

Selections from the Youth's Companion. Number 4. Sketches of the Orient. Perry Mason & Co.

South America (Carpenter). American Book Co.

The South American Republics (Markwick). Silver, Burdett, & Co.

Life in Asia (Smith). Silver, Burdett, & Co.

Views in Africa (Badlam). Silver, Burdett, & Co.

Australia and the Islands of the Sea (Kellogg). Silver, Burdett, & Co.

Footprints of Travel (Ballou). Ginn & Co.

A Geographical Reader (Rupert). Sibley & Ducker.

Stoddard's Lectures. Vols. III and IV. Balch Bros. Co. Large, well-illustrated volumes for library and for reference.

Wild Life under the Equator (Du Chaillu). Harper Bros.

Boy Travellers (Knox). Volumes on Japan and China, Ceylon, Africa, the Congo, Australasia, Egypt, and South America. Large, illustrated volumes.

Travels and Essays of Robert Louis Stevenson. Scribner's Sons. 428 pp.

Around the World in the Yacht *Sunbeam* (Brassey). Henry Holt & Co. 470 pp.

In Darkest Africa (Stanley). 2 vols. Scribner's Sons.

The Story of Japan (Van Bergen). American Book Co. Historical and descriptive.

Story of China (Van Bergen). American Book Co. Descriptive and partly historical. These two books are small schoolbooks suitable for children.

A list of books recommended for teachers is given in the "Special Method in Geography."

ELEMENTARY SCIENCE

THE grounds for the selection and arrangement of topics in the following course are fully explained and illustrated in the "Special Method in Elementary Science."

Each year requires a new and instructive list of topics, with a proper connection and development from those earlier studied. There need be no haste in the working out of strictly scientific ideas and classifications. Much care has been taken in the working out of a complete series of topics in applied science, while not neglecting the usual topics in botany, zoölogy, and other sciences.

The close relation between the spring studies and those naturally following in the fall is kept in mind in selecting topics. A strong emphasis is placed upon the selection of topics from the home neighborhood.

There is a concentration of effort upon a few natural centres in the home neighborhood, such as the home itself, the school, the town, life societies in nature, and the primary occupations.

The selection and emphasis of a few important types in each year is fundamental to this plan.

The selection of important type studies, each of

which is to be worked out in full detail, has the following advantages: —

(*a*) Each type is an important centre of thought around which to associate a large body of related material.

(*b*) Each type is the representative of a large class of more or less similar objects (basis of broad classification).

(*c*) Great abundance of concrete material is gathered about each type object, contributing to interest and clear perception.

(*d*) A continuous biographical study of life history or development has strong consecutive force.

(*e*) The deeper causal and vital relations that bind plant or animal to its environment can only be traced out by this detailed study of a single important object.

(*f*) A single important topic is kept before the children long enough, not only to gather up a varied collection of experimental knowledge about it, but to organize it, and to bring it into relation to other topics in all the studies.

(*g*) The type studies pave the way to a recognition of *general laws* in natural phenomena which give the most comprehensive views. This process of working up gradually to an understanding of the general laws of nature furnishes a natural approach to the sciences. It is discussed at some length in the "Special Method in Elementary Science."

FIFTH GRADE

FALL TERM

1. *Pond life in the fall.* (*a*) The turtle. Shell and peculiar structure. Life history; habits. Food, and how obtained. Hibernation in fall and winter.

(*b*) The muskrat. Food, and life in water. Preparation for the winter. Organs. The muskrat house. Materials and construction.

(*c*) Tame ducks and geese. Life in water. Feet, bill, and feathers. Food. Nesting. The young. Compare with wild ducks and geese.

(*d*) Mosquitoes in late summer and fall. Excursion to the pond. Metamorphosis of mosquito in pond. Collect eggs, and hatch. Modes of protection against mosquitoes. Means of destroying them. Disease germs carried by mosquitoes.

(*e*) The crab.

(*f*) Tree and other plant life about the pond. Rushes, sedges, and coarse grasses.

(*g*) An aquarium. Care of plants and animals in aquarium.

References.

Nature Study and Life (Hodge).
Ducks and Geese. Farmers' Bulletin, No. 64.
In Brook and Bayou (Bayliss).
Life in Ponds and Streams (Furneaux).
Lessons in Zoölogy (Needham).

2. *Birds that feed upon weed seeds.* (*a*) The abundance of weed seeds in fields and by roadsides. Kinds of weeds. Collection of samples of seeds.

(*b*) Birds useful as weed destroyers. The junco and other sparrows. The blackbird. The snowbirds. Finches and quails. The English sparrow. Observing birds when feeding.

(*c*) The effect upon farms, gardens, and lawns.

References.

Nature Study and Life (Hodge).
Birds as Weed Destroyers. Bulletin.

3. *Orchard.* (*a*) The apple tree. Cultivation of the apple. Pruning and trimming of trees.

(*b*) Insects injurious to apple tree. Codling moth. Collections for spring. Apple-tree borer. Tent caterpillar (follow next spring).

(*c*) Peach trees. Care of trees; pruning. Budding in fall. Cutworms and how to avoid them.

References.

The Codling Moth. Bulletin 142, Cornell University.
The Peach-tree Borer. Bulletin 176.
The Evolution of our Native Fruits (Bailey).
The Apple, and How to Grow It (Brackett). Farmers' Bulletin, No. 113.
Life Histories of American Insects (Weed).
The Peach-tree Borer. Farmers' Bulletin, No. 54.

Important Insecticides. Farmers' Bulletin, No. 19.

Spraying Fruit Diseases. Farmers' Bulletin, No. 38.

Apple Twigs (Bailey). Cornell Teachers' Leaflets, No. 3.

4. *Inventions and instruments.* (*a*) The stove. Furnace. Lamp. Structure; ventilation; air; oxygen in the air necessary to fire.

(*b*) The thermometer. Construction; expansion due to heat; scientific and common uses of thermometer. Other illustrations of expansion and contraction.

(*c*) The compass. Magnetic needle; uses in navigation, etc. History of its early use and value.

References.

Lessons in Physics (Lothrop and Higgins).

Other Text-books in Physics.

The History of Physics (Cajori).

5. *The cooking of starchy foods.* (*a*) The starch in plants: potato, corn, rice, wheat, etc. The starch test. Starch and sugar. Chemical elements in starch.

(*b*) Effect of cooking upon starchy foods. Boiling potatoes; cooking rice. Recipes for cooking vegetables.

(*c*) The digestion of starchy foods. Value of starch for heat; energy and fat.

References.

Domestic Science in Elementary Schools, Chapter III (Wilson).

Elements of the Theory and Practice of Cookery (Williams and Fisher).

The Chemistry of Cookery (Williams).

Colton's Physiology.

6. *Minerals.* (*a*) Salt. Nature of salt. Salt deposits. Uses of salt in food as preservative. Solution in water. The ocean saltiness. Manufacture of salt by evaporation.

(*b*) Lime. Lime in water. Hard water. Limestone. The lime kiln. Lime as a soil maker. The limestone quarry.

References.

First Lessons in Minerals (Richards).

Observation Lessons in Common Minerals (Clapp).

Common Minerals and Rocks (Crosby).

WINTER TERM

1. *Tobacco and its uses.* (*a*) The tobacco plant. Nicotine as a poison.

(*b*) Cigarettes and how made. The effects of smoking cigarettes by boys. Physical and mental effects. Testimony of physicians. The slavish influence of bad habits.

(*c*) The economy of the tobacco habit.

(*d*) Tobacco smoke used on plants to destroy plant lice, etc.

References.

Our Bodies and How We Live (Blaisdell).
Applied Physiology (Overton).

2. *Winter birds.* (*a*) Observe and make a note of birds which remain during the winter. Study especially the three following groups: —

(*b*) Seed consumers: sparrows, snowbirds, English sparrows, quail, snowflake, tree sparrow.

(*c*) Insect eaters: woodpeckers, chickadee, brown creeper, nuthatch.

(*d*) Birds of prey: hawks, eagles, etc.

(*e*) Feeding the birds in winter. Effects of severe weather, as icy and sleety weather, upon birds. Feeding of birds with crumbs, grain, and suet.

(*f*) Trees and shrubs which supply food to birds in winter: choke-cherry, hackberry, elderberry, cedar, juniper, etc.

References.

Nature Study and Life (Hodge).
Birds of Village and Field (Merriam).
Life of Audubon, the Naturalist.
The First Book of Birds (Miller).

3. *Inventions.* (*a*) The water-wheel as a mechanical power. Construction and use as source of power.

(*b*) The wind-mill. The machinery by which the power is made available for pumping, etc.

(*c*) Gunpowder and explosive ingredients. Uses of gunpowder. Blasting. Rifle and shot-gun; care and use. Danger of toy pistols, firecrackers. Heavy ordnance.

(*d*) The reaper as a labor-saving machine. The value of these inventions for increasing production and cheapening products.

References.

Text-books in Physics.
Progress of Invention in the Nineteenth Century (Byrn).
History of Physics (Cajori).

4. *Stories of hunting and life of wild animals.* (*a*) Large game in America: buffalo, deer, elk, beaver, bear, grizzly, eagle, turkey, alligators, the green turtles.

(*b*) Stories of famous hunters and their adventures in hunting big game.

(*c*) Descriptions of the homes, haunts, and habits of these animals in their wild state.

(*d*) Preserves of wild animals of North America.

(*e*) Zoölogical gardens in large cities.

References.

Stories of Animal Life (Holder).
Wilderness Ways (Long).
Natural History in Anecdote (Miles).
Training of Wild Animals (Bostock).
American Animals (Stone and Gram).

Lives of the Hunted (Seton).
Wild Beasts (Porter).

5. *The teeth.* (*a*) Kinds of teeth: incisors, canine, premolars, molars. First teeth.

(*b*) Teeth of animals previously studied: dog, squirrel, ox, horse, cat. Food required for each kind.

(*c*) Structure of the teeth. Enamel. Wrong uses of the teeth.

(*d*) Cleansing teeth. Brush, powder.

(*e*) Dentistry and treatment of teeth. Advantage of having skilled specialists.

(*f*) Chewing of food. Kinds of food that need thorough chewing.

References.

Our Bodies and How We Live (Blaisdell).
Text-books in Physiology.

6. *Weather study in the spring.* (*a*) Record of weather observations. Temperature and cloudiness. Use barometer and thermometer. Notice and compare reports of weather bureau.

(*b*) Observations and experiments on evaporation. How clouds are formed in the sky. The rain storm. Hail. Movement of moisture from ocean to cloud and return to ocean.

(*c*) The thunder-storm. Lightning and electricity. The story of Franklin and the kite.

(*d*) Effect of weather conditions upon garden and farm. Too much moisture or drought.

References.

A Summer Shower (Tarr). Cornell Teachers' Leaflets, No. 14.
About the Weather (Harrington). Appleton & Co.
Elementary Meteorology (Waldo).

SPRING TERM

1. *The forest trees.* (*a*) Tree calendar. The leafing out of different trees. Their blossoms and leaves. The oak; staminate and pistillate blossoms. The hickory, the basswood, the chestnut.

(*b*) The crab-apple, the haw, the hackberry, the wild cherry, birch, sycamore, the tulip, the mulberry, the persimmon, the paw-paw.

(*c*) The evergreens in spring. Study of the white pine.

(*d*) The natural propagation of trees in the woods. Seedlings of different kinds of trees.

References.

A Year among the Trees (Flagg).
Familiar Trees and their Leaves (Mathews).
The Common Trees (Stokes).
The Stories of the Trees (Dyson).
Succession of Forest Trees and Wild Apples (Thoreau).
Trees of the Northern United States (Apgar).

2. *Bees.* (*a*) Honey-bee. Observation of bees among the flowers. White clover, pollination. Effects.

(*b*) The hive; its construction and arrangement. Flowers from which bees collect honey. Moth and other enemies.

(*c*) Different kinds of honey-bees.

(*d*) Range of bees and habits in collecting honey. Uses to greenhouses.

(*e*) The bumblebees. Their nests and food. Red clover. Life history.

(*f*) Hornets and wasps. Paper making.

(*g*) List of flowers visited by bees.

(*h*) Value of bees to gardeners and fruit growers.

References.

Bee-keeping. Farmers' Bulletin, No. 59.
The Honey Makers (Morley).

3. *The pond.* (*a*) The common frog. Early appearance in spring. Frogs' eggs. Hatching. Tadpoles. Food and growth. Noises. Mouth, legs, and feet. Swift movement in water. Enemies of the frogs, as fishes, water-birds, snakes. Means of escape.

(*b*) Treatment and feeding frogs in the aquarium. Resemblance of aquarium to pond.

(*c*) Salamanders, newts, lizards.

(*d*) Managing an aquarium.

References.

The Frog (Marshall).

Life in an Aquarium (Rogers). Cornell Teachers' Leaflets, No. 11.

Nature Study and Life (Hodge).

Elementary Lessons in Zoölogy (Needham).

4. *The house cat.* (*a*) Habits of the house cat in hunting for mice, birds, etc.

(*b*) How the cat is able to provide for itself by its feet, teeth, tongue, whiskers, eyes, and fur.

(*c*) Why cats are kept as pets.

(*d*) The cat as an enemy to useful birds.

(*e*) The close kindred of the cat among the wild animals: wildcat, tiger, cougar.

References.

Chapters on Animals (Hamerton).

Introduction to Zoölogy (Schmeil).

Text-books of Zoölogy.

5. *The ox, its food and organs.* (*a*) Grazing in the pastures. Habits of cud chewing.

(*b*) The mouth and teeth of the ox. Other food, as corn, fodder, root crops, etc.

(*c*) The stomachs of an ox. Uses of the different stomachs.

(*d*) Oxen as draught animals.

(*e*) Other cud-chewing animals: sheep, deer, buffalo, goat.

(*f*) Contrast of ox with horse and with dog and cat.

References.

Practical Zoölogy (Colton).

Practical Biology (Huxley and Martin).

6. *The nursery and the orchard.* (*a*) Seedlings of apple, pear, peach, cherry, etc. Plant seeds and cultivate seedlings. Many seeds are best planted in the fall in preparation for spring study.

(*b*) Planting of fruit trees in the orchard. Soil and arrangement of trees. Spacing.

(*c*) Planting of shade trees. Value of different shade trees.

(*d*) Pruning and care of trees. Use of seed collected in the fall.

(*e*) The wild cherry. Flower and fruit. Food for birds.

(*f*) Insects hurtful to fruit trees and shade trees. Leaf crumpler, moths, tent caterpillar. Gall nuts.

References.

Three Insect Enemies of Shade Trees. Farmers' Bulletin, No. 99.

The Apple and How to Grow It. Farmers' Bulletin, No. 113.

The Common Trees (Stokes).

The Nursery Book (Bailey).

SIXTH GRADE

FALL TERM

1. *Review and continuation of spring studies.* (*a*) The forest trees. Nuts and fruits in the fall.

Leaf coloration and leaf fall; calendar. Collect and tabulate changes in foliage. Season's growth of different kinds of trees; of hardwoods and evergreens.

(*b*) Bees in the fall. Late blossoms visited. Store of honey for winter. Changes in the life of the hive.

References.

Trees of the Northern United States (Apgar).
Our Native Trees (Keeler).
The Oak (Ward).
Bee-keeping. Farmers' Bulletin, No. 59.

2. *Pure water.* (*a*) The water supply of houses. Wells and their dangers. Bored wells. Springs. Cisterns. Former epidemics. Cholera.

(*b*) City water supplies. Dangers of contamination.

(*c*) Diseases springing from impure water. Fevers. Diphtheria.

(*d*) Filters. Distilled water.

(*e*) Bacteria. Their propagation.

(*f*) Testing water. The state chemist.

References.

Municipal Engineering and Sanitation (Baker).
Popular Readings in Science (Gall and Robertson).
School Hygiene (Shaw).
Story of Germ Life (Conn).

3. *The farm.* (*a*) The cultivation of grains and grasses on the farm. Proper modes of cultivation. Machines used.

(*b*) Soils. Poor and rich soils. Rotation of crops. Exhaustion of soils. Value of clover and grasses. Fertilizing with manures and artificial fertilizers. The effect of drainage upon soils and plants. Laboratory experiments with soils.

(*c*) Insect pests of the farmers: chinch-bug; grasshopper, Hessian fly. Scientific methods of dealing with pests.

(*d*) Feeding and fattening of farm stock. The silo as a means of food preservation and supply. The diseases of farm animals and their treatment. The veterinary surgeon.

(*e*) The value of science to the farmer.

(*f*) The agricultural colleges and the state experiment stations. Their uses to the farmer.

References.

The Principal Insect Enemies of Growing Wheat (C. L. Marlatt). Farmers' Bulletin, No. 132.

The Soil (King).

Silos and Silage. Farmers' Bulletin, No. 32.

The Farmer's Interest in Good Seed. Farmers' Bulletin, No. 111.

Practical Agriculture (James).

Meadows and Pastures. Farmers' Bulletin, No. 66.

Commercial Fertilizers. Farmers' Bulletin, No. 44.

Sewage Disposal on the Farm. Farmers' Bulletin, No. 43.

Farm Drainage. Farmers' Bulletin, No. 40.

4. *The pond in the fall* (continued). (*a*) The toad: life history; its food; uses in the garden.

(*b*) Fishes: the perch, carp; life histories; spawning; food of fishes; mode of breathing; structure and organs of the fish. The flesh of fish.

(*c*) The aquarium for fishes.

(*d*) Fish laws in the state.

(*e*) The fisheries commission at Washington. Stocking of lakes and rivers with fish.

References.

Nature Study and Life, Chapter XVI (Hodge).

Life in Ponds and Streams (Furneaux).

American Food and Game Fishes (Jordan and others).

5. *Temperance.* (*a*) Beer. Grains. Fermentation. The alcohol in beer.

(*b*) Wine. Process of making wine.

(*c*) Nature of alcohol. Experiments.

(*d*) Cider and vinegar. Hard cider.

(*e*) Uses of fermented liquors and their effects.

References.

Applied Physiology (Overton).

Graded Lessons in Hygiene (Krohn).

Our Bodies and How We Live (Blaisdell).

6. *Cooking.* (*a*) Meats. Value of different meats as food. Proteids and their muscle-building service.

(*b*) Cooking meats: boiling, broiling, and roasting.

(*c*) Canned meats and extracts.

(*d*) Soups from meats; their value as foods.

(*e*) The cooking of chickens, turkeys, and ducks.

(*f*) Gravy and sauce with meats.

References.

Meats, Composition and Cooking. Farmers' Bulletin, No. 34.

Domestic Science in Elementary Schools (Wilson).

Elements of the Theory and Practice of Cookery (Williams and Fisher).

The Chemistry of Cleaning and Cooking (Richards and Elliott).

7. *Visit to a zoölogical garden as a preparation for winter studies.* A topic suitable to larger cities.

(*a*) The dens of wild animals.

(*b*) The aviary.

(*c*) The fishes.

(*d*) The serpent house.

WINTER TERM

1. *Coal and its origin.* (*a*) Nature and uses of coal. Specimens examined. Kinds of coal.

(*b*) How coal was formed in the earth. The coal strata. How situated.

(*c*) The carbon in coal.

(*d*) Coal gas; how obtained; use; coke; dangers from gas. Natural gas.

(*e*) Petroleum. Various by-products.

References.

The Story of a Piece of Coal (Martin).
Coal and Coal Mines (Greene).
The Geological Story briefly Told (Dana).

2. *Inventions and instruments.* (*a*) Sewer connection with street. Wash-basins. Soil-pipe. Traps. Bath room. Danger of sewer gas. Disinfectants.

(*b*) The hydrostatic press. Construction and value.

(*c*) The steam-engine. The power derived from steam. Its various uses.

(*d*) Fire-proof constructions. Brick and tile. Asbestos. Paint.

(*e*) The telescope; construction and use. Lenses.

(*f*) The clock; pendulum.

(*g*) The ice-making machine.

References.

Handbook of Household Science (Youmans).
Progress of Invention in the Nineteenth Century (Byrn).
Municipal Engineering and Sanitation (Baker).
The regular text-books on Physics.

3. *The sun; light and heat.* (*a*) The sun; size and distance and relation to earth.

(*b*) Light. Nature of light. Undulations. Speed of movement. Laws of light. The prism. The rainbow.

(*c*) Heat. Heat rays, illustrated. Effects of heat upon soil, rocks, etc. Effect upon the atmosphere. Effects upon oceans, lakes, and seas. Plant and animal life dependent upon the sun.

(*d*) Heat a source of power.

References.

Story of the Solar System (Chambers).
Starland (Ball).
The Sun (Young).
Tarr's Physical Geography.

4. *The digestive system.* (*a*) The digestive tract as a whole.

(*b*) Mastication; the teeth; salivary glands.

(*c*) The stomach.

(*d*) Liver and pancreas.

(*e*) The intestinal digestion.

(*f*) The relation of digestion to cooking.

(*g*) Effects of alcoholic beverages on digestion.

(*h*) Temperance and moderation in eating a basis of good health.

References.

Physiology and Hygiene (Hutchinson).
Lessons in Elementary Physiology (Huxley).
The Human Body (Newell).
Other text-books on Physiology.

5. *Contagious diseases.* (*a*) Smallpox and vaccination.

(*b*) Diphtheria; antitoxin.

(*c*) Measles. Whooping-cough. Public regulations in schools.

(*d*) Disinfecting rooms; best means used.

(*e*) Quarantining by city and state or nation. Health officers. State board of health.

References.

School Hygiene (Shaw).

School Sanitation and Decoration (Burrage and Bailey).

Domestic Science in Elementary Schools (Wilson).

6. *The study of wild animals* (continuation). (*a*) The zoölogical garden (in cities).

(*b*) The school "zoo" and home pets.

(*c*) Hunting and large game in Africa. Elephant, lion, ostrich, antelope, giraffe.

(*d*) Homes and habits of these wild animals in the wild state.

(*e*) Books of travel, adventure, and description.

References.

Wild Neighbors (Ingersoll).

Story of the Red Deer (Fortescue).

Wilderness Ways (Long).

Natural History in Anecdote (Miles).

Stories of Animal Life (Holder).
Wild Animals I Have Known (Seton).

7. *Eyes and ears.* (*a*) Structure and parts of the eye. Modes of testing the vision. Frequency of weak or defective eyes.

(*b*) Value and use of glasses. The field glass.

(*c*) Necessity of consulting specialists, as oculists.

(*d*) Structure of the ear for receiving sound. Defective ears and hearing.

(*e*) Instruments to aid hearing.

(*f*) State institutions for the care and education of the deaf and blind. Learning to read, write, and talk.

References.

Our Bodies and How We Live (Blaisdell).
Lessons in Elementary Physiology (Huxley).
Other Physiology text-books.
School Hygiene (Shaw).
School Sanitation and Decoration (Burrage and Bailey).

SPRING TERM

1. *Workers in the soil.* (*a*) Ants; their social habits, nests, food, and burrowing.

(*b*) The earthworm. Its life history; structure and organs. Darwin as a student of the earthworm. Value of the earthworm to agriculture and plant life.

(*c*) Burrowing animals: mole, ground hog.

References.

The Action of Earthworms in the Formation of Vegetable Mould (Darwin).
Worms and Crustacea (Hyatt).
Ants, Bees, and Wasps (Lubbock).

2. *The flower garden.* (*a*) The school flower garden. Transplanting wild flowers. The garden flowers: nasturtium, salvia, tulip, roses, honeysuckle, carnation, petunia.

(*b*) The home garden.

(*c*) Ferns and a fernery. Spores and modes of propagation. Mosses and lichens.

(*d*) Climbing vines. Ampelopsis or Virginia creeper. English ivy.

(*e*) Foliage plants.

(*f*) Insects damaging flower gardens. Plant lice. Treatment of plants.

References.

The Practical Garden Book (Bailey).
Garden Making, Suggestions for utilizing Home Grounds (Bailey).

3. *The ventilation of a house.* (*a*) The chimney and fireplace as a means of ventilation.

(*b*) Plans of ventilating the schoolhouse. Furnace ventilation. Ventilating fans. The circulation of fresh and foul air.

(*c*) The need of fresh air in a building. The

lungs and breathing. Deep breathing. Ventilation of sleeping rooms. Effects of exercise upon breathing. Running, ball playing, gymnastics, etc.

(*d*) Danger of tight houses. Bad effects of poorly ventilated schoolhouses. The danger of draughts from windows and doors.

References.

School Sanitation and Decoration (Burrage and Bailey).

Handbook of Household Science (Youmans).

4. *Instruments and inventions.* (*a*) The lift-pump. Air pressure. Valves and mechanism of the pump. The force-pump.

(*b*) The microscope ; its important uses.

(*c*) The siphon and its uses.

References.

Outlines of Physics (Nichols).

Physics for Grammar School (Harrington).

Elements of Physics (Rowland and Ames).

Other text-books in Physics.

5. *The atmosphere.* (*a*) The nature of the atmosphere. Its parts. Its constituent elements. Experiments.

(*b*) Extent and weight of the air.

(*c*) Relation of the atmosphere to heat and its absorption; to sound; to animal life; to man; to rain and moisture.

(*d*) The winds and their cause.

References.

The Ocean of Air (Giberne).
Text-books in Physics.

6. *The spring birds nesting about houses and barns.* (*a*) The swallow; nesting habits, insect eaters, catching insects on the wing.

(*b*) The chimney-swift and its home in chimneys. Its value as an insect destroyer.

(*c*) The house wren and other house-seeking birds. Wren houses.

(*d*) The bat; its peculiar structure, organs, and habits. Its service as an insect catcher. A mammal. Comparison with birds.

(*e*) How to encourage the birds to nest about the houses, lawns, etc.

References.

Birds, their Nests and Eggs (Ingersoll).
Birds and Bees (Burroughs).
Birds of the Eastern United States (Chapman).
Birds of Village and Field (Merriam).
Birds of the United States (Apgar).

SEVENTH GRADE

FALL TERM

1. *The care and management of a grove or forest.* (*a*) Review of previous tree studies. Kinds of trees, leaves, bark. Seedlings. Leaf coloration. Light relations among trees.

(*b*) The renewal of forests from year to year. Natural seeding and growth of seedlings. Scattering of seeds by wind, birds, and animals. How man may help nature in planting seeds.

(*c*) How the forest trees are injured or destroyed. Wind and storms. Forest fires. Insects, as bark beetles and tussock moth. The value of ichneumon-flies to trees. Borers, leaf-crumplers. Injury of trees by rabbits, squirrels, sheep, and cattle. Mosses, lichens, and parasites. Forces of decay in the forest. Mould, insects, bacteria, moisture, and weather.

(*d*) The cultivation of a forest. Value of different trees. Length of time required for producing useful trees of common kinds.

(*e*) Lands adapted to different kinds of forests. The profit of cultivating forests.

(*f*) The United States division of forestry. Its efforts to protect and encourage forestry in the United States.

References.

A First Book of Forestry (Roth).
Primer of Forestry (Pinchot).
Forestry for Farmers. Farmers' Bulletin, No. 67.
Our Native Trees (Keeler).
Trees of the United States (Apgar).

2. *Insect life in the pond.* Visits to the pond (review of earlier studies). (*a*) Giant water beetle. Mode of moving, breathing, feeding, etc.

(*b*) Dragon-flies. Damsel flies. Study of their beautiful form and coloring.

(*c*) Caddis flies. Feeding upon plants. Changes and habits.

(*d*) An aquarium. Its construction and use in insect study.

(*e*) Life histories of these insects and their adaptation to environment.

References.

The Natural History of Aquatic Insects (Miall).
Life in an Aquarium. Cornell Teachers' Leaflets (Rogers), No. 11.
Life in Ponds and Streams (Furneaux).

3. *Butterflies and moths.* Review of earlier studies of cabbage butterfly, etc. (*a*) The milkweed butterfly. Life history. Metamorphosis, egg, larva, chrysalis, and butterfly. Its wings, mouth organs, food, migrations. Collection and comparison of other butterflies.

(*b*) The moths. The cecropia and its life history, metamorphosis, etc. Nocturnal habits. The harmful moths in the household. How to prevent the ravages of moths in clothing.

References.

Insect Life (Comstock).
Butterflies (Scudder).
The Milkweed Butterfly (Scudder).
Moths and Butterflies (Ballard).

4. *Cyclonic storms.* (*a*) Highs and lows and the circulation of the air.

(*b*) The movement of a cyclonic storm in its general course. Predictions of storms.

(*c*) Use of weather maps showing the movement of cyclonic storms.

(*d*) National weather bureau. Signals and weather reports. Effects upon sailors, farmers, and railroads.

(*e*) The barometer. Its construction and use. The rain gauge.

References.

Elementary Meteorology (Waldo).
About the Weather (Harrington).

5. *Fire and the process of combustion.* Review of previous topics. Uses of fire. (*a*) Early modes of producing fire by friction. The old myths about fire. Prometheus.

(*b*) The light of a candle. Explanation. Parts of the flame.

(*c*) Oxygen and combustion. The wood fire. Experiments. Results of combustion.

(*d*) Things which are combustible, as wood, coal, oil, gas.

(*e*) Spontaneous combustion.

(*f*) Dangers from fire. Modes of prevention. Fire-proof construction. Asbestos.

(*g*) Sources of heat in the sun. How stored up in vegetation.

References.

How a Candle Burns. Cornell Teachers' Leaflets, No. 2.

Text-books in Physics.

6. *Value of various gymnastic exercises.* (*a*) Bodily measurements and tests. The value of expert trainers and instructors.

(*b*) Chief forms of useful exercise and their value.

(*c*) Value of moderate, systematic exercise at home; at school.

(*a*) Training to strengthen special organs. The lungs and chest. Building up of weak parts.

(*e*) A gymnasium. Uses of different apparatus.

(*f*) The ideal of a strong, healthy body.

(*g*) Ideas of different races in regard to physical education: Greeks, English, Germans.

(*h*) Tendencies to physical deterioration in cities.

(*i*) Historical illustrations of physical training and health experts.

References.

Our Bodies and How We Live (Blaisdell).

The Human Body (Newell).

Physiology and Hygiene (Hutchinson).

WINTER TERM

1. *Distilled liquors.* (*a*) Whiskey and brandy. The bad effects of drunkenness. Tastes and habits formed by moderate drinking. Loss of self-control.

(*b*) Evil effects of distilled liquors on health and the nervous system.

(*c*) Testimony of physicians. Whiskey and brandy not now used much by physicians.

(*d*) Railroads and insurance companies and their requirements. Danger of employing drinking men in places of responsibility.

References.

Graded Lessons in Hygiene (Krohn).
Applied Physiology (Overton).
Our Bodies and How We Live (Blaisdell).

(2) *The kitchen and cooking.* (*a*) Bread making. Review of previous studies. Whole wheat bread.

(*b*) The chemistry of bread making. Yeast; its nature and effects. Bacteria.

(*c*) Baking-powder; good and bad. Baking-powder biscuit. Cream of tartar.

(*d*) Cake making. Pastries, pies. Pastries too rich and not easily digested.

(*e*) Salads. Healthfulness and economy of salads. Kinds and preparation of salads. Oil.

(*f*) The dining room. Furnishing and decoration.

References.

Handbook of Domestic Science, Chapters VIII and X (Wilson).
Bread and Bread-making. Farmers' Bulletin, No. 112.

The Chemistry of Cookery (Williams).
Domestic Science in Elementary Schools (Wilson).

3. *Descriptions of remarkable vegetation.* (*a*) Forests of California. Selvas of Amazon. The bamboo. The banyan tree.

(*b*) Fruit-producing trees: cocoanut, banana, bread-fruit, olive, fig, date, palm, etc.

(*c*) Desert vegetation in America, Asia, and Africa: cactus, prickly pear, eucalyptus.

(*d*) Plant and animal life in the sea.

References.

The Plant World (Vincent).
A Reader in Botany (Newell).
The Wonders of Plant Life (Herrick).

4. *The sick room.* Healthful conditions. (*a*) Fresh air and ventilation. Sunshine.

(*b*) Cleanliness and neatness. Keeping dust from furniture and floor.

(*c*) Bedding and clothing of patient.

(*d*) Cheerfulness, flowers, etc. Remove faded flowers and supply fresh water daily.

(*e*) Visitors and conversation.

(*f*) Trained nurses. The importance of intelligent nursing.

References.

Domestic Science in Elementary Schools (Wilson).
Our Bodies and How We Live (Blaisdell).

5. *The heart and circulation.* Review of earlier studies in physiology and animal life. (*a*) The heart and its structure, relation to veins and arteries. Nature of the blood.

(*b*) The arteries. The veins. The capillaries. The pulse and flow of the blood. Circulation in the frog's foot.

(*c*) Building up of tissues by the blood. Removal of waste.

(*d*) Relation of the blood to digestion and respiration. Mutual dependence of the vital organs upon one another.

(*e*) Effects of exercise upon heart action.

(*f*) The effect of alcoholic stimulants upon the heart.

References.

Lessons in Elementary Physiology (Huxley).
Physiology and Hygiene (Hutchinson).
The Human Body (Newell).
How to Keep Well (Blaisdell).

6. *Inventions and machines.* (*a*) Electric bells. The battery and the electric current.

(*b*) Electric telegraph and the system of telegraphy.

(*c*) History of the telegraph. The life of Morse.

(*d*) The Atlantic cable and the work of Field.

(*e*) Commercial changes produced by the use of the telegraph. Other effects upon newspapers and political life.

References.

Outlines of Physics, an Elementary Text-book for Secondary Schools (Nichols).

Other text-books in Physics: —

The Story of Electricity (Monro).

The Progress of Inventions in the Nineteenth Century (Byrn).

7. *Medicines.* Review of earlier topics. (*a*) Useful medicines. Common ones: quinine, Pond's extract, laxatives. External applications; treatment of wounds and accidental injuries.

(*b*) The prevention of disease; by proper diet, clothing, avoidance of exposure, and exercise.

(*c*) Patent medicines. Large amount of alcohol in many patent medicines.

(*d*) Poisons and antidotes and their occasional use. Danger to children.

(*e*) The advice of physicians in taking medicines.

(*f*) The folly of trusting quacks and nostrums.

References.

Our Bodies and How We Live (Blaisdell).

Text-books of Physiology.

SPRING TERM

1. *Musical instruments.* (*a*) The tuning-fork. Vibrations and sound.

(*b*) The violin. The vibrations of a string. The manufacture of violins. The masters.

(*c*) The bell. Tones and overtones. Famous bells.

(*d*) The piano. The construction of a piano. Great musicians. The pipe-organ. The orchestra.

(*e*) The horn, drum, and other musical instruments.

(*f*) The human voice; vocal chords. The common musical scale.

(*g*) The various uses of music in theatres, churches, homes.

(*h*) The human ear. Its structure and adaptation to sound.

References.

Sound, a Series of Simple Experiments (Mayer).
Text-books on Physics and Physiology.

2. *The protection of garden plants, fruit trees, and shade trees from harmful insects.* (*a*) Review of apple and peach tree, codling moth and apple-tree borers, tent-caterpillar, cutworms. Insect eaters, as woodpeckers, chickadees, nuthatches, etc. Insect pests on the farm; chinch-bug; grasshoppers, etc.

(*b*) Life histories of the rose beetle, cankerworm, the apple maggot, apple-leaf crumpler, plant lice, the scale insects.

(*c*) Mildews and moulds on fruit trees and garden plants.

(*d*) Modes of destroying the various pests by protecting swallows, bats, woodpeckers, meadow-larks,

and other insect eaters, also by the use of sprays and poisons.

(*e*) Spraying compounds and their value. Machines and contrivances for spraying.

References.

Nature Study and Life, Chapters XII and XIII (Hodge).
The Spraying of Plants (Lodeman).
Insects Injurious to Fruits (Saunders).
Injurious Insects of Farm and Garden (Treat).

3. *The earth and other planets.* (*a*) Review of earlier studies of the sun, moon, planets, and constellations.

(*b*) The earth and its path round the sun. The plane of the ecliptic. Corresponding paths of other planets. The series of planets and distance from the sun. Note planets visible evening or morning.

(*c*) The moon and its changes during four weeks. Its value as a light giver and its influence upon the tides. What is known about the moon and conditions upon its surface.

(*d*) Eclipses of sun and moon, and how produced.

(*e*) The sun as the centre of the solar system.

References.

The Story of the Earth (Seeley).
The Story of the Solar System (Chambers).
Starland (Ball).

4. *Bacteria.* (*a*) Modes of studying bacteria. Recent advances in study of bacteria. Value of microscope.

(*b*) Pasteur and his experiments. Fermentation. Wines.

(*c*) Useful bacteria and their important service in many ways.

(*d*) Bacteria and disease. Changes in medical treatment due to a study of bacteria.

(*e*) The lesson of cleanliness as taught by the study of bacteria.

References.

The Story of Germ Life (Conn).
Louis Pasteur: his Life and Labors (Hamilton).
Popular Readings in Science (Gall and Robertson).

5. *The English sparrow.* (*a*) Importation to America and history of its conquest of America.

(*b*) Its good and bad qualities. Habits; relation to other birds; quarrelsomeness. Nesting habits, food, and relation to weed seeds and insect pests.

(*c*) Study of bird structure as typified by the English sparrow. Bony structure, feathers, bill, feet.

(*d*) Means of getting rid of the English sparrow.

References.

Nature Study and Life (Hodge).
Elementary Lessons in Zoölogy (Needham).
The English Sparrow. Farmers' Bulletin.

6. *Life history of the oak.* (*a*) Spring blossoms and leaves. The sprouting and growth of the acorn.

(*b*) Uses of the bark, roots, leaves, and stem in the growth of the tree. The flow of sap; work of the leaves and sunlight.

(*c*) The rings of growth as shown by a cross-section of the trunk. Collect specimens and compare with the rings of growth in other trees.

(*d*) Insects which house in the bark and leaves of the oak. Gall nuts. Squirrels.

(*e*) The uses of the oak to man; lumber; bark; shade; mast.

(*f*) Long period of the oak's life. Famous historical specimens.

References.

Leaves and Acorns of our Common Oaks (Wyman). Cornell Teachers' Leaflets.

The Oak (Ward).

EIGHTH GRADE

FALL TERM

1. *Classification of trees.* (*a*) The hardwood forests. Review of chief groups.

(*b*) Evergreen forests.

(*c*) Tropical forests.

(*d*) Forest preservation.

(*e*) The Department of Forestry. Government

preserves. Forest fires. Exploitation of forests by lumber companies.

2. *The rocks and rock strata.* Review of earlier studies. Rock decay; kinds, etc. (*a*) Collections of rocks to illustrate the chief classes of rocks, soil, sands, etc.

(*b*) Stratified rocks: how produced and the long history they suggest.

(*c*) Igneous rocks. Volcanic action and internal heat of the earth.

(*d*) Chief periods in geological history.

(*e*) Excursions to study local geological forms and history. Review of the ice age.

(*f*) Kinds of stone used for building purposes, for statuary, monuments, etc.

References.

Town Geology (Kingsley).
Outlines of Field Geology (Geikie).
The Story of the Earth (Seeley).
First Book in Geology (Shaler).

3. *Game birds.* (*a*) Partridge. Its habits and life history. Its protective coloring. Its flight.

(*b*) Prairie chicken. Its home in the grain fields.

(*c*) The wild pigeon. The great flocks once seen.

(*d*) Game laws and protection of game. Nesting seasons. The danger of exterminating our game birds.

References.

Protection of Birds and Game (Directory of State Officials and Organizations for 1901, Circular No. 33, United States Department of Agriculture).

Information concerning Game, Seasons, Shipment, and Sale (Circular No. 31, United States Department of Agriculture, 1900).

Citizen Bird (Wright and Coues). The Macmillan Co. Interesting and well illustrated.

4. *The essentials of a good dwelling-house, as based upon scientific knowledge.* (*a*) Healthful location, with healthful surroundings. Materials best suited for sanitary construction.

(*b*) Dry, clean cellar. Cemented floors and walls. A cold fruit-and-vegetable cellar.

(*c*) Plumbing and sewer connections. Soil pipe. Bath room. Laundry.

(*d*) Kitchen equipment: sink, pantry, refrigerator, cooking outfit, laundry.

(*e*) Ventilation by flues and circulation of fresh air.

(*f*) Safe construction against fire. Flues, tile lined. Furnaces, or heating plant.

(*g*) Pure water. The sources. Kind of pipes. Filters, cisterns, wells, etc.

(*h*) Gas and electric lights. Piping and wiring. Danger from gas and electric wiring.

(*i*) Cleanliness by means of soap, disinfectants, sunlight. Proper neatness and care in sick room.

(*j*) Electric bells, telephones, and wiring.

(*k*) Library. Standard books in history, science, and literature.

(*l*) House decoration: paper, frescos, pictures, and fine art.

(*m*) Locks. Safe; for safety deposit, for business papers, silver, jewels. Vaults in banks.

(*n*) Flower garden and conservatory.

(*o*) Piano and musical instruments.

(*p*) A workshop with tools.

References.

Domestic Science in Elementary Schools (Wilson).

School Sanitation and Decoration (Burrage and Bailey).

5. *Interesting inventions in printing.* (*a*) A rotary steam printing press. The speed and quantity of work done. Labor saving.

(*b*) The linotype machine. The effect of this machine on printing and labor.

(*c*) Electroplating. An application of chemistry and electricity.

(*d*) Historical development of printing. Gutenberg. Franklin. Later inventors.

(*e*) Excursions to a printing house (newspaper work) and to a book bindery.

References.

Progress of Invention in the Nineteenth Century (Byrn).

The Wonders of Modern Mechanism (Cochrane).

6. *Alcoholism and opium.* (*a*) Review of previous studies of alcoholic drinks.

(*b*) Evil effects of the liquor traffic upon homes and upon society. Amount of crime caused by drunkenness. Great waste of money in the sale and use of alcoholic drinks.

(*c*) The important and legitimate uses of alcohol.

(*d*) Opium, the sources of opium. Its use and demoralizing effects.

(*e*) The relation of the government to the manufacture and sale of alcoholic drinks and narcotics.

References.

Graded Lessons in Hygiene (Krohn).

Applied Physiology (Overton).

Our Bodies and How We Live (Blaisdell).

WINTER TERM

1. *Respiration.* Review and general survey of the vital organs. (*a*) The lungs and their structure and function. Breathing in lower animals and in man.

(*b*) Relation of lungs to circulation of blood. Purification of the blood in the lungs.

(*c*) Causes of weak lungs. Fresh air and deep

breathing. Increase of lung capacity. Exercise and its effects.

(*d*) Lung diseases and their prevention.

(*e*) Consumption as a germ disease and modes of preventing its spread. Modes of isolating it. Pneumonia.

(*f*) The stethoscope.

(*g*) Influence of climate on lung trouble.

References.

Our Bodies and How We Live (Blaisdell).

The Human Body (Newell).

2. *Scientific cleanliness in surgery.* Review of sick room. (*a*) The operating room and its equipment.

(*b*) Bacteria and their danger, and provision against them. The instruments, bandages, sterilizing, clean hands, and cloths.

(*c*) Antiseptics and disinfectants and their use by surgeons and nurses.

(*d*) Anæsthetics and their value in surgery. Great improvement in modern surgery.

(*e*) Results of scientific care, cleanliness, and scientific skill in dealing with surgical cases.

(*f*) Suggestions as to care in accidental cuts, wounds, and sores. Blood poisoning.

(*g*) Great importance of hospitals and their work.

3. *The brain and nervous system.* The brain the seat of control and of intelligence. (*a*) The brain and its structure. Its protection by the cranium.

(*b*) Afferent and efferent nerves and their different uses.

(*c*) Control of the body through the nerves.

(*d*) Derangement of the nervous system.

(*e*) Effects of alcoholic drinks on the nerves and brain.

(*f*) General conditions of a healthy body.

References.

Applied Physiology (Overton).

Lessons in Elementary Physiology (Huxley).

4. *The electric light.* (*a*) The battery and the electric current.

(*b*) The light; how produced.

(*c*) Edison and his experiments.

References.

The Story of Electricity (Monro). D. Appleton & Co.

Elements of Physics (Rowland and Ames).

Lessons in Electricity (Tyndall). D. Appleton & Co.

Other text-books of Physics.

5. *Scientific modes of extracting and using the metals.* (*a*) Assaying and its value in mining operations.

(*b*) Smelting of ores. The uses of quicksilver. The reduction of low-grade ores.

(*c*) The blast furnace and the production of pig iron.

(*d*) Steel production. The Bessemer process. The various uses of steel.

(*e*) Aluminum. Its production and use.

References.

Experimental Science (Hopkins).

The Chemistry of Common Life (Johnson).

6. *A vestibuled train, a product of scientific invention.* A varied application of science to life. (*a*) A house with heating, lighting, ventilation.

(*b*) Kitchen and cooking. Dining car.

(*c*) Sleeping rooms. Smoking rooms. Lavatories.

(*d*) Danger of wrecks.

(*e*) Steam brakes. Automatic coupling. Economy and life-saving devices.

(*f*) Steam-engine. Mode of applying power in a locomotive engine.

(*g*) Car building, architecture and decoration.

(*h*) The engineer; his responsibility. His control of the train. The necessity for skill and watchfulness.

References.

The Wonders of Modern Mechanism (Cochrane).

7. *The adulteration of foods.* Review of previous study of foods and drinks. (*a*) Modes of food adulteration, as in the case of butter, flour, sugar, oil, canned fruits, wines, whiskeys, milk, candies, coffee. Tests of food adulteration.

(*b*) The profit from food adulteration and the extent of it.

(*c*) Necessity for government inspection and strict laws. Inspection of meats to prevent the sale of diseased meats, scientific knowledge needed.

(*d*) Modes of food preservation. Canning, drying, cold storage, refrigerator cars, and ships. The refrigerator in houses. Value of ice. Dangers.

References.

The Care of Milk. Farmers' Bulletin, No. 63.
Sugar as Food. Farmers' Bulletin, No. 93.
Domestic Science in Elementary Schools (Wilson).
Municipal Engineering and Sanitation (Baker).

SPRING TERM

1. *The hothouse and its equipment.* (*a*) The exotics in a hothouse. Adaptation to warm climate. Heating.

(*b*) The flora of the tropics as reproduced in the hothouses.

(*c*) The flora of desert and arid regions: cacti, century plant.

(*a*) Excursions to hothouses to study modes of treating hothouse plants.

(*e*) Diseases of plants in hothouses. Bees in hothouses for cross-fertilization.

(*f*) The propagation of plants in a hothouse.

References.

The Practical Garden Book (Bailey).

2. *The warblers.* The myrtle, summer, palm, Blackburnian, black and white creeping, black-throated blue.

(*a*) Place of warblers among the families of perching birds. Elementary classification of birds.

(*b*) The food of the warblers.

(*c*) The food of other birds. How birds' stomachs are studied to determine their food.

(*d*) Experiments and reports of the government. Useful and hurtful birds to farmers, fruit-growers, etc.

(*e*) False conclusions reached by gardeners, farmers, and fruit-growers in regard to the good and harm done by birds. Necessity for science.

References.

Nature Study and Life (Hodge).

First Book of Birds (Miller).

Animal Memoirs, Part II, "Birds" (Lockwood).

Birds of the Village and Field (Merriam).

3. *Landscape gardening.* Review of earlier tree and flower study. (*a*) Suitable trees, bushes, foliage plants, and flowers for planting on lawns.

(*b*) Plan of laying out lawns, parks, and gardens. Color effects. Useful trees and plants in forest, field, and nursery.

(*c*) Best season for planting trees, bushes. Review of nursery and tree planting.

(*d*) Visits to well-kept lawns and parks to observe plans and effects.

References.

Garden Making, Suggestions for utilizing Home Grounds (Bailey).

4. *Fossils in the rocks.* Review of rocks and rock strata. (*a*) Collection of fossils. Phosphates in the soil and their value.

(*b*) The history of extinct animal life.

(*c*) Coral reefs and their history.

(*d*) The geological survey. Its history. Relation of geological survey to agriculture and mining.

(*e*) Visits to museums where fossil remains and casts are seen.

(*f*) Famous discoveries of fossil remains.

References.

First Book in Geology (Shaler).

The Earth and its Story (Heilprin).

5. *The kitchen and cooking.* Review of earlier lessons on foods and cooking. (*a*) The preparation, use, and cooking of fruits. The preservation of fruits.

(*b*) The analysis of the food stuff in vegetables, fruits, and meats.

(*c*) The essentials of a healthful diet. Common faults of cooking and dieting.

(*d*) The value of science in determining the value of foods and methods of cooking.

References.

Domestic Science in Elementary Schools (Wilson).

Handbook of Household Science (Youmans).

6. *Photography.* (*a*) History of photography.

(*b*) The camera; its construction and use. Materials and processes of photography.

(*c*) Importance of photography in practical life and in science.

References.

Photography, Indoors and Out (Black). Houghton, Mifflin, & Co.

The Story of Photography (A. T. Story).

A full list of books for the use of pupils and teachers for the entire science course is given in the "Special Method in Elementary Science."

GENERAL LESSONS

MANY schools have a regular period for general lessons, where current events and other important topics not elsewhere adequately treated are discussed.

We think there are good reasons for taking up such lessons after a regular systematic plan. They are of such importance that they require in the teachers a full equipment of knowledge and a reasonable apportionment of time. The arguments in favor of such general lessons may be stated as follows: —

1. The standard branches of study do not cover sufficiently the whole range of important knowledge and experience. There are springing up about us at all times valuable and instructive topics in which children should be encouraged to take a strong interest, topics, too, which the regular school studies do not deal with. In the nature of the case many of these passing events cannot be foreseen and provided for. The school life itself, and the course of events out of school, throw into prominence from time to time topics of great value which call for immediate and intelligent discussion. It may be athletics, or politics, or diplomacy, or household economies, or personal behavior, or social problems, or scientific discoveries, etc. They spring up irregularly, and

they need to be treated while the heat of local or immediate interest is on.

2. It is difficult to bring the regular studies to the point where they bear directly upon present life. In some cases it may not be desirable that we should. It is claimed, for example, that American history since 1860 cannot be taught satisfactorily in grammar grades. The events are too recent and the problems are too complicated to admit of any clear perspective. Many of our present-day problems, like the trusts, the tariff, reciprocity, temperance, trades unions, compulsory education, national expansion, municipal franchises, and the single tax, are in the field of controversy, as yet unsettled. The best living authorities differ radically on these questions, and it is not advisable to confuse the minds of children with many such enigmas. The regular course in history should deal chiefly with problems that are settled, and so in other studies.

And yet it is desirable that many current events and live topics should be intelligently discussed with grammar school pupils. The general lessons offer the suitable opportunity, and thus bring history, science, and other studies into much closer relation to present life.

The practical bearings of knowledge upon life are now receiving much attention from educators. The general lessons may become one of the chief means of mediating this relation between scholarship and

life. We are doing this more and more in the regular studies. Many of our lessons in geography, applied science, literature, and history draw their illustrations directly from present industries, and from everyday political and social affairs. But there remain still a great many important topics, not touched in the regular studies, to which the attention of children should be turned. There is little danger that we shall bring the realities of experience into too close touch with school studies. The opposite result, isolation, is more apt to be the result.

Such lessons should cultivate a broad and intelligent public spirit, a growing interest in social enterprises and reforms, an inquisitive spirit in regard to inventions and useful discoveries. They should enlist the sympathies of children, for instance, in behalf of helpless and dependent classes, as orphans and defectives, for those who are oppressed and unjustly treated in our own country and in other lands, in the improvement of the conditions of the poor and ignorant in cities, of soldiers in hospitals, of women and children in factories, and of those in jails and prisons.

Public institutions, as hospitals, orphanages, schools, public baths, and parks, old people's homes, summer excursions for poor city waifs and newsboys, are worthy of their intelligent sympathy. To cultivate in school children sensible and practical judgments in regard to various classes of people and their conditions and needs, in regard to the public health and

sanitary arrangements, in regard to pure foods and healthy conditions of life, as discussed in good newspapers and periodicals, — all this lies within the range of legitimate school influences.

We may say that such a period for general exercises will establish a closer interaction between the various school studies by working over important topics which involve several branches. It relates studies more closely to daily life by carrying many ideas into the region of everyday practice. It thus cultivates appreciation for the concrete facts and situations of common life and supplies illustrations, upon which all theories are based. It cultivates interest in everyday, social, and community affairs, and leads out the mind to unselfish and public-spirited concern for others. It breaks the shell of narrowness and provincialism, and makes us citizens of a larger world, partakers in the vital concerns of that large region outside of the school walls.

Generally speaking, the schools now design a more direct participation in life than heretofore, by touching it more closely at many points. The school looks to the world-life for its motives, its illustrative materials, and its units of study. Not so much the sciences in their objective and independent organization of knowledge, as their points of contact with the common life of men, have become the centres of study.

If we can teach children how to use libraries and

newspapers, how to find and sift the best articles in magazines, if we can lead them to inquisitive interest in common happenings, and in efforts at social progress, we shall strengthen the lessons of the school and gradually accustom them to the surroundings of that larger world which they must soon enter.

3. There are many matters of practical wisdom, of prudential advice, of personal behavior in contact with the world and in the emergencies of life, which the teacher should plan to talk over systematically with young people. Wise parents do this, but the majority of parents are thoughtless, not to say unwise, in these important matters. The teacher should be a mentor whose superior experience with the world should qualify him to open the eyes of his pupils judiciously, and perhaps save them many a disagreeable blunder and perhaps false step. It is certainly one of the highest functions of a teacher to be a sensible and respected adviser of young people.

4. To some extent the general lessons may be the means of gradually introducing the new studies into the schools. Many of the schools have not yet adopted nature study, oral work in literature and history stories, manual arts and physical training. We suggest that the period of general lessons in such schools be partly devoted to experiments along the line of the new studies. A large share of the progress made by American schools is due to the

progressive spirit of teachers themselves, who are enterprising enough to study and experiment with new subjects. New theories are tested by working over new materials. Perhaps this is the best way to make real progress, as it combines the old and the new in the same teacher, and is apt to retain the best in both. Gradually in this way plans for the new studies can be worked out, and the way paved for the best changes and reforms in the course of study.

The effort on the part of teachers to work out the treatment of new topics is also one of the best means of increasing skill, power, and originality in instruction, because the teacher is thrown upon his own resources in selecting, presenting, and elaborating his topics.

5. There is probably no single study that would cause the teacher to grow more alert, many-sided, and judicious than attention to such general lessons. It would give him more intelligent judgment in practical affairs, and more resource in himself. It must awaken respect among children for common sense and real intelligence. Teachers are sometimes deficient in their knowledge of current public and practical matters. It would surprise many children to hear their teachers discuss important public affairs and business and prudential topics with full knowledge and mature judgment.

To be interested and well posted on the single tax, in athletics, in municipal reforms, in the progress of

medicine and surgery, in plans for protecting fruits and grains from insect pests, in establishing and enriching a local library, in the reform of inebriates, in the fight against tuberculosis, in balloons and air-ships, in camping outfits and hunting, in the Russo-Japanese war, — all this demands an alert and intelligent teacher and not, necessarily, one who squanders time upon too many things. For it is the function of a schoolmaster to deal broadly and sensibly with all the common interests of life and to awaken and instruct children in these broad-minded ways.

The following list of important topics may be suggestive: —

1. Newspapers, Periodicals, and Libraries.

How to read a newspaper. Selection of the things worth reading in a newspaper. A few of the best periodicals. Occasional discussion of important magazine articles. The selection of books for home reading from the library. Frequent suggestion of suitable books: of biography, of travel, of science, of fiction, of reference and information. How to select and collect a few good books for a private home library.

The trivial, worthless, and sensational things in newspapers.

The management of a great newspaper and collection of news.

Advertisements in papers and magazines, and their value to the individual and to the public.

2. Advice upon General Social Topics.

(*a*) Clothing. Effect of care and neatness in dress upon success in life. What is meant by good taste in dress for boys and girls? Showy and extravagant dress. Extremes in fashion. How far it is well to conform to conventionalities in dress.

(*b*) Good manners.

What is meant by a gentleman or lady? Some of the marks of good breeding. What is a fop? a boor? a rowdy? a dandy?

Kind-heartedness needs to be associated with becoming behavior.

Some famous gentlemen and their manners. Books on manners and behavior. The advantages of good, easy manners early formed.

(*c*) Conversation.

Pleasing features in conversation. Pleasantries, stories, jokes, riddles. Humor and its right uses. Good story-tellers. Danger of trying to be witty or humorous. Advantage of seeing the ridiculous and humorous. Great humorists and their stories.

Value of general information in conversation.

Use of good language in conversation. Bad grammar and its effects.

Pronunciation. Careless and slovenly speech.

Disagreeable habits in conversation. Loud and boisterous manners, contradiction, and interruption. A good listener. Courtesy toward others in speaking. Extravagance in language. Slang and its

abuses. The slang age. Slang and swearing somewhat alike in showing lack of thought. Some slang develops into good English. Good temper in conversation.

(*d*) Behavior at the table.

Some common usages. Necessity for close observation of others. Cautions against common faults. Washington's rules.

(*e*) Good manners in travelling.

Travelling a good opportunity to study people and manners. Selfishness displayed on trains and boats. Many opportunities for helpfulness in travel. Hotels and their usages.

3. The Practical Bearings of School Studies upon Life.

In what ways arithmetic and grammar are of practical utility. How literature in novels, plays, and newspapers reflects real life. Why modern languages are studied. What classes of people need the ancient languages. Does it pay to be a good speller and penman? In what ways is history of use in life? What are the advantages of music to the person of no special musical talent? Which of the natural sciences are of most value to people generally? The value of manual arts as a preparation for life. Learning a trade, and when to begin.

4. What are Supposed to be the Advantages of *High School* and *College* Education?

Is it better to enter business without a high school

training? How far men and women educated in higher schools and colleges are leaders in the world. "Who's who in America."

Advantages and disadvantages of being a self-made man. Examples discussed. Some of the auto-biographies and lives of self-made men. Franklin, Lincoln, etc.

The course of study in the high school, and what it aims at. Some colleges near home, and college life. Its advantages and expense. Some account of the more famous colleges and state universities. The pleasures and attractions of college life. The encouragement of capable boys and girls by scholarships and fellowships. The road open to all industrious boys and girls.

Public and private endowment of colleges, libraries, hospitals, museums, art institutes. The value of such foundations. Carnegie libraries. Their usefulness to the general public. Great educational societies for the South. Peabody Fund. Hampton and Tuskegee institutes.

Technical schools and their purpose. Schools for business training and their value. Professional schools and the training needed for entering them. Schools of mining, agriculture, engineering, theology, medicine, and law.

5. Charity and Philanthropic Organizations.

Charity for the relief of the poor in cities. Orphanages. Paupers and beggars, and how to treat

them. Tramps and tramp nuisance. How to provide work. Workshops. The juvenile court. Reformatories. Children's aid organizations. Women's organizations for Charity. Woman's Christian Temperance Union. Mission societies. The Red Cross Society and nurses. Tenement houses in cities and their betterment. Public asylums for the care of the blind, deaf, and feeble-minded. State support. Child labor in factories. Sweatshops.

6. Present Social Problems.

Conflicts between capital and labor. Labor unions and union workmen. Non-union men and their rights. Strikes and lockouts. Losses. Employers' organizations. Trusts and monopolies. Interstate commerce commission.

Public evils. Corruption in politics. Graft. Bribery in city councils and legislatures. The lobby and its influence. The saloon and the liquor influence. Lotteries and their evils. Laws. Prize fighting and its bad effects. Race tracks and their influence. Gambling places and laws. Loafing in small towns and cities.

7. Local, State, and National Topics.

(*a*) Local industries and enterprises. Factories and the relations of labor and capital. Taxes and their uses. Town improvement societies.

(*b*) Municipal problems. Franchises for street cars, electric or gas lighting, waterworks. Licensing of saloons. Police protection of life and property

in cities. Public health and sanitation. Pure milk and food supplies. Railroad crossings and track elevation. Building inspection in cities.

(*c*) National problems. The pension budget and the reasons for it. Civil service reform. The control of the trusts and interstate commerce. The President's message. Congress.

(*d*) International affairs. The Hague Tribunal. Arbitration. The duties of neutrals in war. Neutral rights. Diplomacy and the consular service. Treaties with foreign countries. Foreign ministers and their work. Foreign immigration and how it is controlled. Laws for Chinese. The escape of criminals from one country to another. Extradition.

8. Anniversaries of historical events, both in our country and in other lands, — *e.g.* the inauguration of Washington; the founding of Jamestown; the Louisiana Purchase; the Emancipation Proclamation; the battle of Sedan; the founding of Harvard College; Columbus's discovery; the birthdays of Lincoln and Washington; the French Revolution; the Reformation; Decoration Day.

9. The Work of Famous Living Men and Women. Secretary Hay. Admiral Togo. Edward VII. Booker T. Washington. Carnegie. Jerome. Folk. Jane Addams. President Eliot. William T. Harris. Emperor William. Edison. Famous singers, musicians, actors, lecturers, sculptors, painters, inventors, philanthropists.

10. Discoveries and Inventions.

Wireless telegraphy. Antitoxin. The air brake. The automatic car coupler. The linotype printing machine. The automobile. Electric machines. The Bessemer converter. Wood paper making. The screw propeller. The flying machine. Smokeless powder. Submarine boats. The stethoscope. The X-ray.

Magazine articles on these and similar topics. The lives of inventors and scientists. Books of biography for reference.

11. Importance of Executing Laws.

The failure of public officials in executing the laws in regard to saloons and criminals in cities. Health and building ordinances disregarded. Danger to the public. Pure food laws and their violation. Tax dodgers. Wrong assessments. Bribery and graft in city councils and in state legislatures. Lotteries and laws against them. Corruption in politics, buying of votes in elections. Lobbying in Washington. Violation of banking laws and losses by bank failures. Bank inspectors. Public calamities due to neglect of officials and inspectors. The Iroquois fire. The Slocum disaster. Railroad accidents. Corruption in the public service. Forest depredations. Public lands. The control of pests and epidemics.

12. Medicines and Drugs.

The great importance of skilful physicians and expert druggists. The adulteration of medicines.

Quack doctors and their advertisements. Patent medicines and their common use. Amount of alcohol in patent medicines. Necessitiy for consulting experienced physicians. Dangerous drugs and medicines. Poisons and antidotes. The education of a physician.

13. Insurance Companies.

General value of reliable companies. Fraudulent insurance companies. Examination for life insurance. Provision for families in good companies. Life-insurance policies. Premiums. Fire insurance and other kinds of insurance. Trust companies and their services.

14. Current Events of Real Importance.

The President's message. Occasional bills in Congress and in the state legistatures. Political and other conventions. Foreign affairs and wars. Arbitrations. Foreign ministers and their special problems. Famines and public calamities. Financial panics and strikes. Meetings of national organizations, as W.C.T.U., the N.E.A., the G.A.R., bankers, medical societies, national labor organizations, scientists. The Speaker and leading men in Congress. Supreme Court decisions. The English Parliament and its measures. The boll weavil and cotton. Irrigation. Forest reserves and protection.

These topics are illustrative. Others might be added.

ARITHMETIC

THE following outline in arithmetic is an effort to organize the arithmetical work for intermediate and grammar grades on the basis of a few controlling ideas: —

1. To secure a complete mastery of the elementary processes and facts.

2. The omission of old-fashioned, obsolete topics not required in modern life.

3. The omission of over-difficult problems in all subjects.

4. The emphasis of mental arithmetic.

5. A method of treatment which will bring out the underlying unity in various processes.

6. An interpretation of industrial, geographical, and historical topics from the mathematical point of view, *i.e.* a real application of mathematical standards to all phases of knowledge and experience.

A full treatment of this course of study, with a discussion of method in all the grades and a chapter of illustrations, is given in the "Special Method in Arithmetic."

FIFTH GRADE

1. *Review of Long Division.*

This involves careful work in all the fundamental operations and shows where oral drills are needed.

2. *Compound Numbers.*

Review previous standard units and tables, with quick drill in oral reductions.

Table of time from seconds to centuries.

Natural units in day, year, and lunar month.

Table of cubic measures; build up small cubes, and concrete and analyze the reckoning of cubical contents.

Cord measure for wood and stone.

3. *Fractions.*

Review of simple fractions by oral work. (See chapter of illustrative lessons in "Method of the Recitation.")

Prime factors of numbers to 25. Prime numbers to 50.

Factoring of numbers to 50 at sight.

Change mixed numbers to fractions, and *vice versa.*

Drill on the oral addition and subtraction of fractions.

Not much written work is needed in fractions.

Multiplication of fractions.

Two ways of multiplying a fraction; multiplying a fraction by a fraction. Division of a fraction by a whole number; division of a fraction by a fraction;

(*a*) by reducing to a common denominator; (*b*) by inverting the divisor and multiplying.

Use and define the terms numerator, denominator, factor, prime factor, and common factor.

4. *Decimal Fractions.*

Show that the decimal is another mode of expressing the common fraction, as $\frac{3}{5} = \frac{6}{10} = .6$.

Show the relation of decimals to the decimal scale in whole numbers; show the relation of decimals to United States money.

Read distinctly and write correctly decimals to thousandths. Be careful always in placing the decimal point.

Before writing a decimal, think clearly: (1) the number of orders in the decimal; (2) the number of zeroes, if any, to the right of the decimal point. This will enable the pupil to think or image the number clearly before writing and to write the number promptly from left to right.

Give many dictation exercises in writing decimals. Make clear the rule for marking off the number of decimal places in the product. (See chapter of illustrative lessons for a fuller treatment of decimals.)

Division of decimals.

The form suggested by David Eugene Smith should be much used. ("The Teaching of Elementary Mathematics," p. 122.)

2.5)7.325. Change to this: 25.)73.25

2.93

50

232

225

75

Give many simple problems in the division and multiplication of decimals to thousandths.

5. *Simple percentage* (see chapter of illustrative lessons for fuller treatment).

Percentage is based upon the simple fraction, hundredths.

(*a*) Get 1%, 2%, 3%, and 4% in numerous concrete problems, *e.g.* 2% of 400 acres. Many oral problems for quick class work.

(*b*) Teach 50% = $\frac{1}{2}$, 25% = $\frac{1}{4}$, 33$\frac{1}{3}$% = $\frac{1}{3}$, 10% = $\frac{1}{10}$, 16$\frac{2}{3}$% = $\frac{1}{6}$, 75% = $\frac{3}{4}$, etc. Apply the aliquot parts to the solution of many oral problems.

6. *Business Forms.*

Make out bills as illustrated in the arithmetics. Study actual accounts and bills as made out at the store. Receipted bills, bank checks as receipts.

Private accounts of expenditures.

Secure neatness and accuracy in written papers, but do not have many of them.

7. *Mental Arithmetic.*

Constant oral reviews of fundamental operations.

Most problems in common fractions should be performed without pencil or paper.

Give frequent and varied problems in aliquot parts and in simple percentage.

Express the division of numbers by 10, by 100, by 1000, by shifting the decimal point. Divide also by 25, 50, 40, 60, etc. Most problems in compound numbers should be limited to two denominations and worked orally. Use mental arithmetics and make up mental problems from common experience.

8. Use varied devices for oral and board work; *e.g.* for addition and multiplication write thus: —

4, 7, 3, 9, 6, 4, 2, 5, 8

7

Arrange the figures also in the wheel.

9. Avoid common errors in language.

Figures are not numbers.

Figures are not written under each other.

"Will be" and "would be" are not often appropriate forms of expression in arithmetic.

2 tens = 20 units + 5 units = 25 units is wrong.

10. *Applied Problems in Geography.*

The Erie Canal, cost of building, deepening, etc.

Proposed expenditure of $101,000,000 by New York State for enlarging the canal. Expenses, tolls, and freight.

Cost of Hoosac Tunnel and other tunnels.

Expense of subways in New York, Boston, and other cities.

Bridge building: the Brooklyn bridge; number of passengers daily across the bridge; income, expense, and cost.

Capacity of elevators and warehouses, reservoirs, coal-bins, ships, cars.

Expense of the state government: income of the state, salaries of state officers, support of state institutions, state university, and normal schools; the finances of the state penitentiary; support of state militia.

Irrigated lands: extent of lands under irrigation; agricultural wealth of the irrigated regions; gold production in different states compared, and products compared with that of irrigation; coal, silver, copper, and iron production.

Amount of shipping (tonnage) on the Great Lakes and at chief harbors.

Cotton production, its value, and the amount exported.

11. *Science Problems.*

Extent of injury to apple and other fruits by the codling moth and other insects.

Measuring the height of mountains by thermometer and barometer; air pressure.

Expense of the tobacco habit to the individual and to the nation.

Weather calculations; records of temperature and

of barometric readings; evaporation and precipitation; the rain gauge.

Water power at Niagara; electric power.

12. *History Problems.*

Length and duration of Columbus's voyage and other great voyages, as of Magellan, Drake, De Gama.

Lewis and Clark expedition; distance and time required; expense of the trip.

Size of new continents; length of rivers.

Breadth and size of the oceans.

Chief periods of English history.

Amount of wealth gained by Spain in America.

SIXTH GRADE

1. *Systematic Review of the Elementary Operations in Arithmetic.*

(*a*) Abundant oral problems in the four processes; multiplication tables.

Fractions: quick mental work in all forms.

Prime factors of numbers to 50.

One-step reduction of compound numbers.

Aliquot parts of 100.

(*b*) Review of written arithmetic.

Short and long division.

Decimals to thousandths in multiplication, division, etc.

Business accounts; notes; bills.

2. *Fractions* (advanced work).

Multiplication and division of fractions.

Factor numbers to 100 at sight.

Reduction of fractions to a common denominator.

Greatest common divisor; least common multiple.

Confine the work to simple problems, mostly oral.

How to find the prime factors of larger numbers by inspection.

Multiplying and dividing a fraction by a whole number.

Explain the inversion of divisor.

3. *Decimal Fractions* (advance).

Read and write decimals to four periods.

Memorize the number of each period and order to the right of the decimal point.

Explain the reason for marking off the number of decimal places in the product and quotient.

Work also by the short method in multiplication and division, as follows:—

444.659488 ÷ 5.3872

```
12.36                    82.54
 2.5364          53872.)4446594.88
-------            430976
24.72              -------
 6.180              136834
  .371              107744
  .074              -------
  .005               290908
-------              269360
31.350               -------
                     215488
```

4. *Compound Numbers.*

Cubic measure; table.

Circular measure; table.

Table of English money, and comparison of units with United States money.

5. *Percentage.*

Review of simple percentage and aliquots.

Applications to buying and selling.

Simple interest, with oral and written problems.

Use a mental arithmetic and make up many simple problems based on everyday life.

6. *Analysis of Elementary Processes.*

In this grade children should analyze familiar processes clearly and express them in simple language; *e.g.* addition of fractions, the multiplication of decimals, long division, cancellation, least common multiple, etc. The definition of terms, as partition, prime factor, and percentage, should be understood and memorized.

7. Notation and numeration of whole numbers to six periods. Prompt and accurate reading and writing of numbers from dictation for class work at the board.

8. In this grade, on account of the review of all elementary processes, there is special opportunity to simplify arithmetic by discovering the similar processes and unifying principles that run through the various processes in arithmetic; *e.g.* the decimal scale is found in whole numbers, in common

fractions, in United States money, in decimal fractions, in percentage, and later in all the metric tables. The ratio idea also extends through all numbers.

9. *Applications to Geography.*

A cotton mill: cost of raw cotton; expense for buildings, machinery, and equipment; number and wages of employees; losses from wear and tear, fires, insurance, strikes, competition, and changes in markets; selling and distribution of goods; collections.

Municipal improvements, as water mains, water towers, engines, reservoirs, filtering plant, employees.

Population of ten large cities in the United States compared among themselves and with other great cities of the world.

New York City: chief traffic routes by land and water centring here. Quantity of exports shipped in and out.

A year's expenses of the government for the army and navy.

A great newspaper: cost of collecting news; printing machines and presses; paper used; reporters, compositors, and editors.

A large railroad system, as the Pennsylvania or New York Central lines: extent of lines; value of roads, stations, and equipment; number and wages of employees.

10. *Science Lessons.*

Loss to farmers through chinch-bugs and grasshoppers.

Percentage of nutritive material in different foods.

Power generated by hydraulic press, steam engine.

The telescope and microscope and their power.

Amount of fresh air needed in ventilating houses and schoolrooms.

II. *History.*

Size of armies in the Persian and Punic wars.

Size of Indian tribes and populations of the different colonies.

Penn's purchase of Pennsylvania; price and quantity of land.

Number of colonists, as English, French, Dutch, Spaniards.

Extent of territory in the early grants.

Cost of the French and Indian wars.

SEVENTH GRADE

I. *Full Study of Percentage.*

Treat percentage as a case in simple fractions. In using the text-book supply an abundance of simple oral problems from common experience.

Review the aliquot parts and drill thoroughly upon their simple applications.

Require children to explain in all cases per cent of what, and thus avoid confusion.

In applying percentage to any given form of busi-

ness, be sure to discuss fully the conditions of the business as a basis for understanding the problems.

2. *Commission and Brokerage.*

Study the subject in its present business aspects. Use newspaper quotations as the basis of problems.

3. *Interest, Simple and Compound.*

Many oral problems and simple written problems are better than complex and difficult solutions. Examine and write out the forms of notes and endorsements. Simple problems in partial payments. Show business papers, as mortgages and mortgage notes and coupons.

4. *Banking.*

The business of a bank and its relations to other kinds of business. The vaults and safety deposit boxes. A personal bank account. Checks and drafts. Savings banks and plans. Interest charged on loans. Interest paid on deposits. The trustworthiness of banks. Bank inspectors. Different kinds of banks. Banking can be well studied in its chief business aspects in almost every community.

5. *Insurance.*

Fire insurance. Rates charged on different varieties of property. Dwelling-house insurance. Life insurance. Endowment policies. Annuities. Options. Examinations for insurance. Provision for families. The large insurance companies. Capital. Mutual companies and assessments. Unsafe companies.

6. Instead of the more difficult problems given in many text-books, and especially in the place of obsolete topics, the following subjects are suggested as suited to bring arithmetic into close relation to industry and to important topics in other studies: —

(*a*) *Storekeeping and Accounts.*

Buying and retailing goods, buying and selling prices, per cent of profits, sources of expense in conducting a business, necessary losses, bad accounts, breakage and waste.

(*b*) *Farming.*

Value of farm lands, rents, cost of stocking a farm with animals and machines, cost of barns, granaries, fences, silos, wells, and windmills, bad crops and losses, variable prices for grain and live stock, profit on the whole investment.

(*c*) *Saw-mill or Planing-mill.*

Cost of machinery and mill, supply of logs from the woods and cost, expense for labor and repairs, how economies are practised in using up waste material, sale and shipment of lumber and finishing material, contracts for buildings.

(*d*) There are many other common industries, each to be studied from its own peculiar point of view as tested by financial output. Such are a shoe factory, hardware store, canning factory, creamery and dairy, the florist's hothouse, a vegetable garden, coal mining, quarrying, brick kiln, printing a newspaper.

(*e*) Bookkeeping has an important bearing upon

all these topics. The method of keeping a private account by a farmer or householder, accounts as kept in a small retail business, are deserving of a few definite lessons.

7. Arithmetic applied to Geography.

Finances of the national government. The budget for one year in its main items. Income through customs and internal revenue. Income from the post-office and from sale of public lands.

Expenses of the government (chief items) for one year, for the executive, legislative, and judicial departments, for pensions, army and navy, public buildings, rivers and harbors, agriculture, mining and fisheries.

Comparison with the expenses of royalty in England and Germany.

The iron industries of England and the United States compared.

Traffic routes of Great Britain with her colonies. Length and importance of these routes. Volume of trade with different countries.

Population of France compared with that of other countries in Europe and America. Rate of increase in different countries.

Expense of keeping up the German army. Compare with the expense account in other European countries. Size of armies in time of peace.

Cost of the common schools in the United States. Number of pupils and teachers. Expense of equipping a large university.

Extent of navigable rivers and canals in Europe. Number of miles of railroad in Europe and in America. Value of railways and equipment.

8. *The Revolution.*

Number of men enlisted from each colony. Debt incurred by each colony and by Congress during the war. Hamilton's financial plan for paying the expenses of the war. Funding the debts.

9. *Science.*

Forests of the United States. Extent and value. Taxing of alcoholic liquors. Income from such taxes for cities and government. The earth and the planets: relative size, distance, and orbits.

EIGHTH GRADE

1. Review of chief topics in elementary arithmetic. Rapid and accurate work in addition, subtraction, etc., with oral problems.

Review of simple fractions in the four operations. Chiefly oral problems.

Reading and writing and operations with decimals.

Factoring, L.C.M. and G.C.D.

Tables of compound numbers.

Mensuration of rectangles, triangles, parallelograms, circles, etc.

Percentage as worked out in seventh grade.

In the final review in eighth grade, with the greater maturity of the children, there is oppor-

tunity to realize more clearly the close connection between all the topics of elementary arithmetic.

A good mental arithmetic may be of much service. Oral problems secure complete mastery of processes and lead to rapidity and accuracy.

2. *Taxes.*

The system of local, county, and state taxes. State laws. The assessor and collector. Purpose of taxes; local, county, and state officials, and the expenses therefor. Public buildings, roads and bridges, school taxes, public works. Special assessments.

The city budget of New York or Chicago for one year. Bonding cities to raise money for improvements. Cost of city improvements, as parks and streets, water supply, sewer system.

3. *Corporations.*

The organization of stock companies. Certificates of stock, dividends, bonds, and interest. The directors and officers of stock companies. The business of large corporations, as of railroad, mining, and manufacturing companies.

The market for stocks and bonds. Newspaper quotations and their fluctuations. Broker's commission. Speculation in stocks.

4. The foreign trade of the United States. Exports and imports. Quantity and value of each. Money exchanges with foreign countries. The money units of England, France, and Germany.

The metric system used in Europe. The meter-stick, compare with yardstick. The history of the metric system. Its advantages. Teach the near equivalents of the chief metric units.

5. *Longitude and Time.*

Table of correspondences, 15° corresponding to one hour of time.

Standard time; time belts of the United States. Difference between sun time and standard time. Mathematical geography, size of the earth.

6. *Land Surveying.*

The United States land surveys. Prime meridians, townships, sections, quarter sections. The sale of government lands, preëmptions. The price of agricultural lands, of city lots, of business blocks.

7. *Square Root.*

Involution and evolution.

Use the diagram and the algebraic formula. Extract two and three place roots.

Notice the squares of fractions and decimals.

8. *Mensuration.*

Measurement of the circle. Area of the circle.

The volume of prisms and cylinders.

Capacity of cisterns and tanks.

Pyramids and cones and their volume.

"Pupils should be provided with a rule, a pair of dividers, and a right triangle of wood, hard rubber, or cardboard.

"An accurate diagram, drawn to scale, should be

made of all problems that admit of it. The various rules of mensuration should be developed inductively, from actual measurement of objects. They should be expressed in formulas. Simple algebraic processes should be taught as they are needed in the development of formulas." (Illinois Course of Study, p. 91.)

9. *Geography Problems.*

The colonial empire of Great Britain. Area and population compared with Russia and the United States.

Comparison of the great rivers and river valleys of the world in area, navigability, traffic, and population.

Asia, area and population compared with other continents.

A line of ocean steamers between New York and Liverpool. Size, cost, capacity, horse-power, and speed of vessels. Expense of coaling and manning a steamship. Cargo and passengers, profits.

The navy of England, its cost. Compare with the United States and other countries.

The great ship canals of the world, cost, benefits, and profits on tonnage. Effects upon the traffic routes and trade of the world.

The Siberian railway, length and cost. Compared with continental lines in the United States.

Population of the world, distribution of races and religions.

The gold and silver, the grain production of the world according to leading countries.

Comparison of the great cities of the world in importance, trade, and population.

10. *History Problems.*

Immigration to the United States from European countries since the Revolution.

The Civil War: expense to the North and South; number of men engaged on both sides; losses.

The growth of the United States in territory.

Growth of the United States in population according to the census reports.

MANUAL ARTS

The following outline was chiefly made by Oscar L. McMurry of the Chicago Normal School. The primary theses upon which the selection and arrangement of problems are based are stated in Vol I of the course of Study.

GRADES V AND VI

I. *Book Making:*

Problems (*A*) calling for leather and other materials; processes requiring use of sewing frame, clamps, cutter and tooling instruments; development of design in book covers.

1. Large portfolio; cloth-board, cloth or leather for corners and hinge; plain or figured paper for lining; flaps with cloth hinge and tape for tying.
2. Diary or pocket note-book; bond or linen paper for the book; Russian calf for cover, tooled design on same.

(*B*) Supplementary Problems.

1. Card case; morocco cover.
2. Blotter pad; cloth-board base, with cloth or leather cover; leatherette backing, cloth edges, blotter; corner designs or monogram.

II. *Weaving:*

Problems (*A*) involving methods and designs used in caning seats and backs of chairs.

III. *Sewing:*

1. Hemming towel of huck or crash.
2. Hemstitching towel of huck or damask.
3. Hemming curtain of scrim or sateen.
4. French hemming napkin of damask.
5. Making of a doily.
6. Marble or button bag, made of gingham, sateen.
7. Pin case for travelling.
8. Doll's pillow sham with tucking and mitred corners.
9. Sleeve protectors of linen or dimity.
10. Darning of stockings.
11. Patching an apron.

IV. *Apparatus Making:*

Problems (*A*) requiring knowledge of physical properties of materials; joint work in wood and iron; making of simple detail drawings.

1. Loom of wood with leather heddle and metal guide bars.
2. Insect box of wood; wire screen; glass panel.
3. Aquarium of galvanized iron or copper, glass.

4. Model of canal lock worked out in clay, wood, and iron.

(*B*) Supplementary Problems.

1. Box for window garden of $\frac{5}{8}''$ or $\frac{7}{8}''$ soft wood.
2. Cage for squirrels, made from wire.

V. *Furniture Making:*

Problems (*A*).

1. Wall case with door, soft wood.
2. Calendar frame in form of screen.
3. Sconce in wood with brass reflector and receptacle.

(*B*) Supplementary Problems.

1. Picture frame in hardwood, rabbeted for glass.
2. Footstool in hardwood.
3. Book rack or book shelves.

VI. *Tin- and Coppersmithing:*

Problems (*A*) involving knowledge of sheet and galvanized iron, brass, and copper in their relation to the industries; methods of joining parts; making of necessary working drawings.

1. Lamp shade in band iron and grass cloth, or in sheet brass.
2. Windmill in galvanized iron for wheel, balance and gearing, with frame of metal or wood.

3. Calendar frame in band or sheet brass.
4. Card tray in sheet brass.

(*B*) Supplementary Problems.

1. Push button, battery, and wiring for bell.

VII. *House Building:*

Problems (*A*) developing the house idea along historic lines; showing interior and exterior design.

1. Model of adobe house in clay.
2. Representation of feudal castle in cardboard.
3. Representation of Colonial house in cardboard.
4. Model of Greek temple in clay and plaster.
5. Representation of waterworks station, pumps, and cribs in plaster and wood.

(*B*) Supplementary Problems.

1. Representation of lighthouse and life-saving station in cardboard and wood.
2. Representation of grain elevator with bins, freight car, tracks, and grain-elevating machinery.
3. Model of saw-mill in wood and iron.
4. Building of fireplace for Colonial house.
5. Section of street showing sidewalk, parkway, curb, street paving, sewer, water

and gas mains, street and house drainage, in wood, cement, and stone.

VIII. *Pottery Making:*

Problems (*A*) involving hand and wheel modelling and decoration.

1. Cup, bowl, tray, inkstand, candlestick.

(*B*) Supplementary Problems.

1. Relief forms; animal.

GRADES VII AND VIII

I. *Book Making:*

Problems (*A*) involving the binding and repair of magazine and other books in serviceable and artistic form in cloth or leather.

1. Binding of magazines having (*a*) sections with many leaves, (*b*) sections with few leaves. Board cover, cloth or leather hinge and corners, false back, lettering.
2. Repair of torn and soiled books.

(*B*) Supplementary Problems.

1. Science note-book; cloth-board, cloth cover, figured lining paper, flexible hinge and rings, or inside cloth lap with eyelets for tape.
2. Magazine cover in Russian calf, tooled design.

II. *Weaving:*

Problems (*A*) requiring the threading of a large loom; designing and weaving of car-

pet or rug. Dyeing and spinning of materials.

(*B*) Supplementary Problems. Preparation of flax for weaving.

1. Designing and weaving towel or table spread in linen.

III. *Sewing:*

Problems.

1. Making doll's outfit, as blanket with blanket stitch, coarse handkerchief; apron, flannel skirt, with various flannel seams; muslin skirt, simple dress.
2. Collar tops.
3. Handkerchiefs.
4. Fancy work-bag.
5. Dressing sack.
6. Corset cover; fitting and trimming.
7. Flannel skirt with methods of plackets, bands, etc.
8. Child's underwaist.

IV. *Cookery:*

Problems.

1. Cereals, vegetables, fruits, eggs, meats, fish, batters and doughs, miscellaneous.
2. Care of kitchen, table service, cleaning, marketing.

V. *Apparatus and Furniture Making:*

Problems (*A*) involving design and more de-

tailed drawings of constructions to be made; study of joint with reference to service to be performed and proper method of making same; stains, paints, and varnishes; methods of manufacture and purpose to be served by each; qualities of wood, metal, or clay desired for different constructions; cost.

1. Weaving: Loom for carpet or cloth weaving, reel, spindle, shuttle.
2. Bookbinding: Sewing frame, cutting and clamping boards, press.
3. Science: Aquarium, leaf press.
4. Pottery: Modelling board, potter's wheel, kiln.
5. Drawing: Draughting board, T square, draughting table.
6. Games and Plays: Coaster, bob-sled, game board.
7. Sewing: Work-box, sewing screen, folding table.

(*B*) Supplementary Problems.

1. Brake.
2. Rack for holding drawing boards.
3. Vaulting bar and posts.
4. Spring board.
5. Fire screen.
6. Medicine case.
7. Book stand.
8. Chest, panelled and carved.

VI. *Coppersmithing:*

Problems requiring study of design and working drawings; consideration of different methods of shaping and joining parts, together with finishes to be applied.

1. Lantern in black iron or copper.
2. Candlestick in brass.
3. Hammered bowls and plaque forms in copper.
4. Framework for glass designs.

VII. *Building.*

Problems touching the planning of a building where light, circulation of air, convenience, fitness of materials and design must enter as controlling ideas.

Model of tenement house in plaster.

Model of triumphal arch in plaster.

Representation of cathedral in cardboard.

VIII. *Clay Modelling:*

Problems to be worked out in design and executed in clay by hand and on potter's wheel; glazing and firing; making of casts.

1. Vase and bowl forms on wheel; candlesticks, sconces.